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A

MANUAL

OF

MEDICAL JURISPRUDENCE,

AND

STATE MEDICINE,

COMPILED FROM THE LATEST LEGAL AND MEDICAL WORKS,
OF BECK, PARIS, CHRISTISON, FODERE, ORFILA, ETC.

CONTAINING

PART I.
MEDICAL ETHICS OF ANCIENT AND MODERN TIMES.

PART II.
LAWS RELATING TO THE MEDICAL PROFESSION, FROM PARIS AND FONBLANQUE,
SCULLY, WILCOCK, AND CHITTY.

PART III.
MEDICAL JURISPRUDENCE AND STATE MEDICINE FROM THE MOST CELEBRATED
ANCIENT AND MODERN MEDICO-LEGAL WRITERS.

PART IV.
LAWS RELATING TO THE PRESERVATION OF PUBLIC HEALTH—MEDICAL
POLICE—STATE MEDICINE—PUBLIC HYGIENE.

INTENDED FOR THE USE OF

LEGISLATORS, BARRISTERS, MAGISTRATES, CORONERS, PRIVATE
GENTLEMEN, JURORS, AND MEDICAL PRACTITIONERS.

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Second Edition considerably Enlarged and Improved.

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PREFACE TO THE FIRST EDITION.

The object of the author of these pages, is to give a concise and comprehensive view of the received Principles of Medical Jurisprudence, and to collect the scattered and isolated facts from the standard works of legal and medical writers. He is inclined to hope that this volume contains all that is valuable in the systematic works upon the subject; and numerous other topics of vast importance to medical practitioners, which have no place in similar productions. In proof of this assertion, he refers the reader to the ethical and legal parts of this work, and to the articles on medical evidence, adulterations of alimentary matters, and public medicine. He hopes that the promulgation of Medical Ethics, or the institutes of professional conduct, will contribute in no small degree to maintain and support the honour, dignity, character, and utility of the profession, by impressing the minds of medical students with a sense of the noble and virtuous principles which have always characterised their predecessors, and which ought ever to distinguish the scientific cultivators of medicine.

Another novel and important feature in this production is, the exposition of the laws relating to the different orders of the faculty in these kingdoms, which cannot fail to prove instructive and useful to medical practitioners, by informing them of the immense power, vast influence, and high privileges, conferred upon them by the legislature, in exempting them from the performance of many civil duties, and in deeming their evidence conclusive in an immense number of civil and criminal proceedings, which affect the lives, the liberty, the honour, reputation, and property, of every class of society. For many facts mentioned in this part of the subject, the author is indebted to the works of Dr. Paris, and Mr. Fonblanque, of Mr. Willcocks, of Mr. Scully, the celebrated Irish barrister; of Mr. Phelan and Mr. Chitty.

The medical part has been compiled from the standard systems on Forensic Medicine, both domestic and foreign, and illustrated by the opinions and experience of the author. The works of Drs. Male, Gordon Smith, Duncan, Paris, Beck, Christison, Foderè, Mahon, Chaussier, Orfila, Briand, Sedillot, &c. have been laid under large contribution, and the extracts duly acknowledged.

The chapter on medical evidence has been condensed from the valuable lectures delivered in the London University by Professor Amos, as published in the *London Medical Gazette.* Under this head are considered the powers of coroners, and *the propriety and expediency of appointing medical men to the office of coroner.* The addition of the forms of medical certificates, and the method of examining recruits, were considered useful for the guidance of young practitioners.

It has been the author's anxious wish to compress the fullest information in the smallest space, and in the most familiar language, in order to simplify the subject, and render it intelligible to every class of medical practitioners, to barristers, solicitors, coroners, magistrates, private gentlemen, and general readers. Every medico-legal fact which can become the subject of judicial inquiry, is accurately detailed, so that this Manual may be fairly looked upon as a text-book for the practitioners of the law and medicine. It is intended to save both classes much trouble and research. Whether the author has executed his task in a satisfactory manner, must be decided by his contemporaries; but he consoles himself with the reflection, that his design and intention were good, had he sufficient ability to execute it as he wished.

In exposing the absurd distinctions, the defective state of the laws relating to the profession, and the gross abuses of its constituted authorities, a love of freedom and of equality, with an ardent desire to promote the interests of his favourite science, and of humanity, have impelled him to declare the truth, however unpalatable it may be in certain quarters, or to the different orders of the faculty. His motto has been, "*amicus Socrates, amicus Plato, sed magis amica veritas.*"

He has not been the advocate of any party, of any order, of any corporation, but the advocate of the whole profession. He has examined the whole of the charters and statutes relating to the practice of medicine in these countries, and has found them defective, contradictory, oppressive; and, since the legislative Unions between England, Scotland, and Ireland, highly unjust and impolitic. In proof of this statement, the reader has only to recollect the fact, that a Scotch physician, surgeon, or apothecary, cannot practise legally in England; an English member of the faculty cannot practise in Ireland; and an Irish member can neither practise in England nor in Scotland. Such is the state of the law, which was just and right when the three countries were distinct nations, but is unjust and preposterous since they have formed one united empire. The author has, therefore, considered that there never was a more auspicious period than the present, for exposing the absurd state of the laws relating to the faculty in the United Kingdom, when the propriety of constitutional, ecclesiastical, and legal reforms, is the subject of national discussion; and when medical reform is loudly demanded by the whole profession, with the exception of the few interested monopolists. It need scarcely be stated, that the principles and practice of medicine and therapeutical agents, are identically the same in every part of these countries.

Medical jurisprudence is at length included in the course of study required by the Apothecaries' Company of London; but it is strangely excluded in the course required by the Royal College of Surgeons. Had not the University of London appointed a professor of Forensic Medicine, chiefly at the recommendation of the philanthropic Dr. Birkbeck, this branch of medical science would as yet have no place in the course of medical education required in England.

Nevertheless, the most casual observer must be convinced, by daily examples, that the ignorance of ethics and medical jurisprudence, impedes or arrests the career of the medical practitioner, and frequently destroys professional reputation altogether. If proof were demanded of the validity of this position, I need only refer to the newspaper reports of legal proceedings, in which we daily observe ample attestations of the fact. We peruse the most absurd and unscientific medical evidence, more especially in the reports of coroners' inquests, which could never have appeared, had the witness possessed a proper knowledge of forensic medicine, or had the coroner been a medical practitioner. Such displays of ignorance excite the pity and contempt of the scientific portion of the faculty, and the ridicule of the legal profession, and of the public. Mr. Amos has well illustrated this defect, in his admirable cautions to medical witnesses, in which he has cited many cases to prove, that medical evidence has been censured by the bench, ridiculed by the bar, derided by the auditory, and has entailed obloquy and disgrace upon the unfortunate witness.

Medical practitioners should be aware, that all the rising barristers of our criminal courts attend lectures on legal medicine; and often does forensic fame arise from the ability with which an advocate examines a medical witness. A knowledge of medico-legal science is almost as indispensable to the one as to the other; and the coroner who is ignorant of it, is evidently incompetent to discharge his duty to the public, or to secure impartial justice to the accuser or accused. This has been incontrovertibly proved in the article on medical evidence.

It has been erroneously stated by some writers, that the science of medical jurisprudence, is nothing more than the application of the elementary branches of medicine, to the elucidation of judicial investigations; and, consequently, that a scientific medical practitioner must necessarily be a good jurist. This is not correct, inasmuch as the most scientific physicians and surgeons have too often proved to be the worst jurists; because they could not derive the requisite information on medico-legal science from the common systems of medicine or surgery, as it is only to be obtained from works exclusively devoted to the subject. In no lectures or works, except those upon this science, is a student informed of the laws relating to his profession; of his rights, privileges, and immunities; of the cases, civil and criminal, on which he is liable to be called to give evidence: of the received opinions upon these cases; of the danger of wounds, and contusions, and of injuries prejudicial to health or destructive of life; of the analysis or mode of detecting the numerous poisons; of the manner of giving evidence, or of his ethical duties in public and in private practice. It is therefore manifest, that medical jurisprudence is a distinct science, and one of the greatest importance and utility to the members of the medical and legal professions. If it could be taught by the professors of the elementary branches of medical education, there would be no need of a separate professorship; which, therefore, exists in all the medical schools of these and foreign countries.

In conclusion, the author has to remind the critical reader, that in attempting to compress the extensive information comprehended in the narrow limits of these pages, brevity of expression, and too much conciseness, may have rendered the style occasionally obscure or inelegant. This perhaps may be pardoned in a work chiefly intended for medical students, and which was originally published in one of the periodicals (*The London Medical and Surgical Journal*), to fill up lacunæ, and arranged as the suddenness of the occasion demanded; which in general afforded little time for attending to the beauties of style, to euphonious sentences, or to the other qualities of literary composition. If the work supply a want, or contribute to the maintenance of the character and utility of medicine, or in any way benefit the interests of mankind, or the administration of justice, the object of the author will be fully attained.

PREFACE

TO THE

SECOND EDITION.

The favourable reception which this work has received in this and other countries, has compelled the author to endeavour to improve a new edition. He has accordingly enlarged many chapters, introduced much new matter, and carefully revised every part of his work. He has referred to the last editions of all standard works on the subject of which he treats, and appended all that is valuable since his former edition. He has considerably enlarged the first part, on Medical Ethics, by introducing the codes of continental Europe and America, and also those of Dr. John Gregory and Dr. Percival. Under this head, he has commented on Medical Education, Degrees, Diplomas, Medical Appointments—Success—Reputation—Eminence —Moral and Physical Medicine—Clinical Medicine—Rules for Prescribing Medicines—Action of Medicines on the Economy—Posology, or Fixation of Doses of Medicines—Pharmacology.

Part II. Laws relating to the Medical Profession is brought down to 1836. Few additions are made in this section, as the author is of opinion that the whole of the laws relating to Medical Polity in this country, will be remodelled during the present or next Session of Parliament.

Part III. Medical Jurisprudence is considerably enlarged, and in the opinion of the author, improved. Several additional Medico-legal questions have been made in this section.

Part IV. Laws for the Preservation of Health—Medical Police—State Medicine—Public Hygiene. This section occupies sixty pages of new matter. It comprises a vast number of subjects of great interest to public health and happiness.

Chapter I. Laws for the preservation of Public Health — Quarantine, Boards of Health — Contagious Diseases —Disinfection — Purity of Air, Water, and Situation — Guardians of the Public Health—College of Physicians, as inspectors of Apothecaries' Shops, officers of Public Charities —Commissioners of Paving, Sewers, Cleansing the Streets, &c.—Framers of the Bills of Mortality.

Chap. II. Inhumation—Burial of the dead in Cities—Searchers and Inspectors—Danger of Exhumation and Opening of Graves —Premature Interment—Uncertainty of the Signs of Death—Account of Individuals buried alive—Vivisections—Proper period of Inhumation—Custom in France and England.

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Chap. V. Nuisances Legally and Medically considered; Trades and Manufactures; Filth in the Streets; Noises by Day or Night; Transitory Nuisances; Physical Effects of; Arrangement of by Paris and Fonblanque, including the Principal Trades and Manufactures; Purity of Air, Water, and Situation.

In addition to the new matter, there is prefixed a history of the rise, progress, and present state of Public Medicine, and also a copious Index, which may, perhaps, be considered a

Medico-Legal Dictionary. It is the fullest hitherto published in our language. Such are the features of this work. The author extracted from all available sources, both domestic and foreign; added the result of his own experience; and has presented to his readers a variety of information, not so far, as his researches enable him to state, to be found in any other elementary work in one volume, of equal size, on Medical Jurisprudence and State Medicine. He has not prefixed or added a bibliography, but leaves his readers to form their own conclusions on the number of works to which he has referred, and which he has duly acknowledged.

Great Queen Street,
St. James's Park, Westminster.
February, 1836.

INTRODUCTION.

Medical Police, Political Medicine, State Medicine, Public Hygiene, Police of Health, and Medical Jurisprudence, comprise the acts of a legislature or government, and magistracy, for the conservation of public health, and also the enactment of laws for the regulation of the practice of the medical profession, and the duty of medical practitioners in aiding the legislature in forming just laws, and public tribunals in the administration of justice.

Medical Jurisprudence or Legal Medicine, is a science by which medicine and its collateral branches, are rendered subservient to the construction, elucidation, and administration of the laws for the preservation of public health. This term is considered by some writers as best calculated to express, in the most comprehensive manner, the application of the medical sciences to the purposes of law.

It has been divided into Forensic, Legal, Judiciary, and Judicial medicine, comprising the opinions and evidence required in courts of justice; and into Medical Police or State Medicine, comprehending all medical opinions and precepts which inform the legislature and magistracy in constructing the laws, and in enforcing them for the preservation of the public health. Both these divisions are included by the Germans in the term *State Medicine.* I have employed both in the construction of this work, as I have enumerated the laws relating to the profession, and to the preservation of public health, together with all medico-legal inquiries. I have preferred this arrangement to any other proposed by medico-legal writers in this country, as it is the most comprehensive. M. Foderè, of Strasburg, who has executed the most elaborate modern work on State Medicine, has divided the science into Medical Jurisprudence and Public Hygiene,* and published three octavo volumes on each subject. The term Medical Jurisprudence is incorrect, as it may imply a knowledge of the laws relating to medical subjects, or a knowledge of the medical sciences as applied to legislation, forensic inquiries, and the Police of Health. It may also unite the legal and medical sciences, and in this sense it is employed by some modern writers (Paris and Fonblanque). Dr. Beck used the term in his excellent work in the restricted sense, and defined Medical Jurisprudence, Legal Medicine or Forensic Medicine, a science which applies the principles and practice of the different branches of medicine to the elucidation of doubtful questions in courts of justice (Elements of Medical Jurisprudence, 1823). He designed to offer another treatise on Medical Police, which has not as yet been published.

Dr. Gordon Smith, our first systematic author on this science, followed the example of Dr. Beck, and published his work entitled, "The Principles of Forensic Medicine, Systematically arranged and applied to British Practice;" it was also his intention to write a separate production on Medical Police, which he did not accomplish. I have included Medical Ethics and Jurisprudence, and State or Public Medicine, in one work, and thus differ from M. Foderè, Dr. Beck, Dr. Gordon Smith, and Dr. Paris. This was the arrangement of some ancient medico-legal authors: Medicus-Politicus, sive de officiis Medico-Politicis tractatus, quatuor distinctus libris: in quibus non solum bonorum medicorum mores ac virtutes exprimuntur, malorum vero fraudes et imposturæ deteguntur: verum etiam pleraque alia circa novum hoc argumentum utilia atque jucunda exactissime proponuntur: opus admodum utile medicis, ægrotis, ægrotarum assistentibus, et cunctis aliis literarum, àtque adeo politicæ disciplinæ cultoribus. Roderici à Castro, Lusitani Philos. ac Med. Doct. per Europam Notissimi. Hamburgi, 1614.

I have also included the codes of Ethics of Dr. John Gregory and Dr. Percival, of the Royal College of Physicians in London, and of the Americans.

The history of Hygiene is coeval with the origin of society. The first wants of man were aliment, and he was instructed in what was salutiferous and noxious to his condition. He soon discovered the influences of exertion, repose, sleep, waking, &c., upon his constitution. The knowledge of the laws, morals, and police of the people relating to the preservation of health, constitutes public hygiene or medicine. It necessarily existed in the remotest ages. The ancients were of opinion, that there was an intimate and mutual dependence between the moral and physical states, and of the necessity of enacting laws for the promotion of temperance and wisdom, as well as for the punishment of excesses and of crimes.

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* Traité de Medecine Legale, et d'Hygeine Publique ou de Police de Santé adapté aux Codes de l'Empire Francais, &c. Par F. E. Foderè Docteur in Med. Professeur de Med. Legal. et de Police Medicale al a Faculté de Medicine de Strasbourg. T. vi. 1813.

All eastern nations had their systems of medical police; we trace it in their legislation, their manners and customs, and in the rules of their public police.

The hygiene of Moses embraced three principal objects: the prohibition of certain aliments, ablutions for certain impurities, and the sequestration of certain diseases reputed contagious, as lepra, &c. The Levitical law, ch. xiii. xiv., commanded the priests to visit the houses infected with the plague of leprosy, or with other contagious disease; to examine the inhabitants, to establish quarantine, to purify the houses, to shut them up, and pull them down in certain cases. We find in Deuteronomy, ch. xxii., that in questions of doubtful virginity, the elders were to be consulted, and enjoined to deliver judgment according to the physical evidence of the case.

It is easy to conceive, the object of legal purifications in warm climates, where the tendency of animal foods to putrefaction, and the copious perspiration of the people, were the causes of insalubrity, which frequent ablutions destroyed. The chief hygienic means of the ancients, in addition to those already mentioned, were gymnastics, baths, and repose after the latter.

The principal rules relative to public police among the ancients, referred to the salubrity of habitations, the locality of towns, cities, and streets.

The Father of Medicine wrote a Treatise on Air, Water, and Situation, and this work has influenced all civilized nations for nearly 3000 years.* It led to the draining of marshes, and improvement of situations. Most persons know that the Roman emperors Julius and Augustus Cæsar, ordered the Pontine marshes to be dried; to which Horace alluded:

> * * * * Sterilis diu palus, aptaque remis
> Vicinas urbes alit, et grave sentit aratrum.

Hygiene was, as already observed, cultivated long before the time of Hippocrates; and the rules regarding it, were deduced from the universal laws of the animal economy, and referred to age, constitution, intelligence, to wants, or pleasures.

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* Hippocrates flourished and wrote before Christ, 460 years.

Moses enforced laws as to the use of all aliments, fruits, grains, herbage, bread, milk, fish, flesh, wine, &c.

According to Herodotus, the Egyptians invented beer, which was subsequently mentioned by Moses,* and they were the most healthful individuals. The Egyptian law ascribed to Menes, ordained, according to Plutarch, that no pregnant woman should suffer afflictive punishment. The Jews made a distinction between mortal and dangerous wounds; and had laws relating to virginity, marriage, adultery, embalming and interring the dead, and other subjects of public medicine. Joseph found the Egyptian priests physicians, and he ordered his father's body to be embalmed.—Gen. l. 6. A.C. 1747.

The ancient Greeks highly estimated the power of morals in preserving health, and perfecting the species; and we find this opinion prevalent in all ancient nations. Their primary object was to give to the country a robust people and vigorous defenders. It was this principle that gave origin to customs, which, in our time, appear to be inhuman and barbarous. Thus the destruction of delicate infants by the Spartans—a horrible custom of the Chinese at present with respect to their female offspring.

The laws of Lycurgus on the physical education of infants and of girls to the time of marriage, with a view of transmitting a good constitution to their offspring, and many more hygienic ordinances, afford ample proof of the state of public medicine among the ancient Greeks. The physical legislation of Pythagoras and Plato was also intended for the conservation of the public health.

It is remarkable, however, that there are scarcely any traces of the union between law and medicine in the works of the ancient Greek physicians. There is some portion of hygiene and state medicine scattered through the voluminous writings attributed to Hippocrates; and some crude speculations on the nature and growth of the infant, the period of pregnancy; and the abolishment of some rude obstetricy. The opinions of the father of physic on the perpetuation of the species, the animation of the fœtus, and on many other physiological questions had great influence on all ancient legislators. Those of Aristotle have had a like tendency; and even to this time. Both these authors held that the fœtus was inanimate in the womb for a certain time, during which it was no crime to cause abortion. The canon law was founded on this opinion, and has influenced all legislators to the present period.* The above authorities also maintained, that pregnancy might be protracted beyond the ordinary term of nine months; which is now the received opinion of physiologists.

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* Leviticus ch. x. Numbers ch. vi.

Medical men, both among the Greeks and Romans, were consulted by the magistrates most frequently on questions of *medical police*, as on the salubrity of cities, and on the means of assuaging the virulence of epidemic diseases: and to subjects of that nature the public functions of the *Archiater*, or state physician, were confined in the lower ages of the empire. That they were summoned to give evidence in a court of justice no where appears; and had they been called, their testimony, in ages when human anatomy was proscribed, must, in a majority of difficult cases, have been of comparatively little value.

The laws of ancient Rome were chiefly enacted on the same grounds as those of Greece; but they embraced more important medico-legal questions. In the reign of Numa Pompilius, before the Christian era, 600 years, and 140 before the time of Hippocrates, it was enacted, "de inferendo mortuo," (lex regia) that the bodies of all women who were in the last months of pregnancy, should be opened immediately after death, so that the infants might be saved if possible. History also informs us, that the elder Scipio Africanus, Marcus Manlius, and the first Cæsar,† were brought into the world by incision of the abdomen, or gastro-hysterotomy; and hence the origin of the term, Cæsarian operation. It was also enacted in the Twelve Tables, A. C. 452, that the infant in the mother's womb was to be considered as living, and all civil rights secured to it. The legitimacy of an infant was limited to 300 days after the death or absence of his putative father, or within ten months of the supposed time of impregnation; but the period was afterwards extended to eleven months. Most of the Roman laws were framed in accordance with the opinions of the ancient philosophers and physicians, and many legal decisions were given; *propter auctoritatem doctissimi Hippocratis.*

Several laws were constructed during the reign of Severus, Antonine, Adrian, and Aurelius, on the authority of Hippocrates and Aristotle; the crime of procuring abortion was limited to those cases in which the fœtus had exceeded forty days, as before that time it was not considered a living being;[*] and the Emperor Adrian extended the term of pregnancy from ten months—the period of legitimacy according to the Decemvirs—to eleven, in accordance with the physiological opinions of the times.[†] It is also recorded by Suetonius, that the bloody remains of Julius Cæsar, when exposed to public view, were examined by a physician named Antistius, who declared, that out of twenty-three wounds which had been inflicted, one only was mortal, which had penetrated the thorax between the first and second ribs. Gerike has collected some curious instances of the inspection of murdered bodies by medical witnesses, from the writings of Suetonius, Tacitus, and Plutarch. The body of Germanicus was also medically inspected; and, by indications conformable to the superstitions of the age, it was decided that it had been poisoned.[‡] The bodies of Agricola and others were also examined by physicians, according to Tacitus.

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* The present law of this country awards a different punishment against the perpetrators of abortion before and after quickening. See INFANTICIDE.

† Plin. Hist. Nat. L. vii.

It does not appear that there was any positive law which required the inspection of wounded bodies by medical practitioners, or that legislators required medical opinions before making laws. It is, however recorded, that before the time of Philumenos, A.D. 80—who first studied obstetricy at Rome—the midwives were ordered by the prætors to examine pregnant women in judicial inquiries. Augustus had previously favoured the profession of medicine, A.D. 10, and exempted its members from public burthens and taxes. About 100, valetudinaria and veterinaria were established in the Roman camps, for wounded soldiers and horses.[§]

Galen was born in 131, and was physician to the gladiators at Pergamos, A.D. 159. He alluded to some questions of legal medicine; he remarked the difference which subsists between the lungs of an adult and the fœtus; admitted the legitimacy of seven months children, and offered remarks on the manner of detecting simulated diseases. He related the case of a Greek lady who escaped punishment for adultery on the opinion of a physician. She had borne an infant very unlike the supposed father; and the physician accounted for this, by referring its resemblance to that of a picture which hung in the chamber of the mother.

The promulgation of the Justinian Pandects, A.D. 529, which laid the foundation of the legal codes of most of the modern states of Europe, may be considered the origin of the connexion between the sciences of law and medicine, or of forensic medicine. Under the titles, *De Statu Hominum; De Pœnis et Manumissis; De Sicariis et Veneficis*, of the *Lex Cornelia; De Inspiciendo Ventre custodiendoque Partu*, of the *Lex Aquilia; De Hermaphroditis; De Impotentia; De Muliere quæ peperit undecimo Mense*,—some questions in medical jurisprudence are discussed; but the decisions of the judges were directed to be guided on such matters, not on the oral testimony of living physicians, examined on the particular point then under consideration, but *propter auctoritatem doctissimi Hippocratis.*

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[*] See INFANTICIDE.

[†] Foderè. Introduction, p. xiv.

[‡] Foderè. op. cit.

[§] Hospitals were first established in Jerusalem by Eudocia, wife of Theodosius, A.D. 440; but medical practitioners did not attend their inmates.

If the Justinian code was an improvement in many respects on more ancient usages, in *one* point of medical jurisprudence, it must be allowed to be more erroneous than that which preceded it, namely, on the time of utero-gestation.

Aulus Gallus informs us, that a decree of Adrian acknowleged the legitimacy of a child born eleven months after the death of its reputed father; and this period has been adopted by Justinian, Novella 39. c. 2, Nov. 89.

From this period to the year 555, the Roman empire was overrun by the Goths and Vandals. The most savage customs now prevailed in the west of Europe, the principles of legal medicine were totally neglected, and the trial by the ordeals of fire, water, and duel, were introduced as appeals to the Deity, in cases which, to rude minds, appeared above human investigation.

"The trials by ordeal in the dark ages of modern Europe, when the decision of the most important questions was abandoned to chance or to fraud, when carrying in the hand a piece of red hot iron, or plunging the arm in boiling water,* was deemed a test of innocence, and a painful or fraudulent experiment, supplanting a righteous award, might consign to punishment the most innocent, or save from it the most criminal of men, have ever been deemed a shocking singularity in the institutions of our barbarous ancestors. We are ready to admit the justice of this charge generally; and yet we fancy that, upon some occasions, we are enabled to discern through the dim mist of credulity and ignorance, a ray of policy that may have been derived from the dawning of a rude philosophy. Trials by ordeal, as we are informed by Mr. Mill, hold a high rank in the institutes of the Hindus. It appears that there are no less than nine different modes of trial, but that by water in which an idol has been washed, and the one by rice, are those which we shall select, as well calculated to illustrate the observations which we shall venture to offer.

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* Priests were among the earlier chemists, and it is asserted, that they frequently instructed the accused, either from a conviction of his innocence, or from less disinterested motives, in some of those means of resisting the action of fire, by which modern jugglers are still enabled to amuse and astonish the vulgar.

The first of these trials consists in obliging the accused person to drink three draughts of the water in which the images of the sun and other deities have been washed; and, if within fourteen days he has any indisposition, his crime is considered as proved.

In the other species of ordeal alluded to, the persons suspected of theft are each made to chew a quantity of dried rice, and to throw it upon some leaves or bark of a tree; they from whose mouth it comes dry, or stained with blood, are deemed guilty, while those who are capable of returning it in a pulpy form, are at once pronounced innocent.

When we reflect upon the superstitious state of these people, and at the same time, consider the influence which the mind, under such circumstances, is capable of producing upon the functions of the body, it is impossible not to admit, that the ordeals above described are capable of assisting the ends of justice, and of leading to the detection of guilt. The accused, conscious of his own innocence, will fear no ill effects from the magical potation, but will cheerfully acquiesce in the ordeal; whereas the guilty person, from the mere uneasiness and dread of his own mind, will, if narrowly watched, most probably discover some symptoms of bodily indisposition, before the expiration of the period of his probation. In the case of the ordeal by rice, a result, in correspondence with the justice of the case, may be fairly anticipated on the soundest principle of physiology. There is, perhaps, no secretion that is more immediately influenced by the passions than that of saliva. The sight of a delicious repast to a hungry man is not more effectual in exciting the salivary secretion, than is the operation of fear and anxiety in repressing and suspending it. If the reader be a medical practitioner, we refer him for an illustration to the feelings which he experienced during his examination before the medical colleges; and if he be a barrister, he may remember with what a parched lip he gave utterance to his first address to the jury. Is it then unreasonable to believe, that a person under the influence of conscious guilt, will be unable, from the dryness of his mouth, to surrender the rice in that soft state, which an innocent individual, with an undiminished supply of saliva, will so easily accomplish?"—*Paris and Fonblanque.*

It was supposed, even in this country, that the agitation of a murderer, on seeing his victim, was sufficient to prove his guilt; and, in some cases, he was obliged to place his hand on the dead body. It is also a popular opinion, that the countenance of a murdered corpse will change when gazed on by the murderer, or any of his near relatives. The following extraordinary cases are noticed by Dr. Beck, from Hargrave's State Trials, vol. x. Appen. p. 29—reign of Charles II.:—

"An ancient and grave person, *minister to the parish were the fact was committed*, being sworn to give evidence, according to custom, deposed, 'that the body being taken up out of the grave, thirty days after the party's death, and lying on the grass, and the four defendants being present, were required each of them to touch the dead body. Okeman's wife fell upon her knees, and prayed God to show tokens of her innocency. The appellant did touch the dead body, whereupon the brow of the dead, which before was of a livid and carrion colour (in terminis, *the verbal expression of the witness)*, began to have a dew, or gentle sweat arise on it, which increased by degrees, till the sweat ran down in drops on the face; the brow turned to a lively and fresh colour; and the deceased opened one of her eyes, and shut it again; and this opening of the eye was done three several times. She likewise thrust out the ring or marriage finger three times, and pulled it in again, and the finger dropped blood from it on the grass.' Sir Nicholas Hyde, chief-justice, seeming to doubt the evidence, asked the witness, Who saw this besides you?—Witness. I cannot swear what others saw. But, my Lord (said he), I do believe the whole company saw it, and if it had been thought a doubt, proof would have been made of it, and many would have attested with me. Then the witness, observing some admiration in the auditors, spake further, 'My Lord, I am minister of the parish, and have long known all the parties, but never had occasion of displeasure against any of them, nor had to do with them, or they with me; but as I was minister, the thing was wonderful to me. But I have no interest in the matter, but as called upon to testify the truth; and this I have done.' [This witness was a very reverend person, as I guessed, of about seventy years of age. His testimony was delivered gravely and temperately, to the great admiration of the auditory.] Whereupon, applying himself to the chief-justice, he said, 'My Lord, my brother here present, is minister of the next parish adjacent, and I am sure saw all done that I have affirmed.' Therefore, that person was also sworn to give evidence, and did depose in every point—'the sweating of the brow, the change of the colour, thrice opening the eye, the thrice motion of the finger, and drawing it in again:' only the first witness added, that he himself dipped his finger in the blood which came from the dead body, to examine it, and he swore he believed it was blood. I conferred afterwards with Sir Edward Powell, barrister-at-law, and others, who all concurred in the observation. And for myself, if I were upon oath, can depose that these depositions (especially the first witness) are truly reported in substance.'—Ibid. p. 29.

"In the trial of Standsfield, for the murder of his father, a similar charge was brought. It is stated, that when the son was assisting in lifting the body of his father into the coffin, it bled afresh, and defiled all his hand. The opposite lawyers observe, that 'this is but a superstitious observation, without any ground either in law or reason. Carpsovius says, he has seen a body bleed in the presence of one not guilty, and not bleed when the guilty were present." They assign, with great probability, as the cause of this bleeding, the fact, that the surgeons had made an incision about the neck, and that the motion of the body, in removing it, caused the fresh hemorrhage from that part. Hargrave, vol. 4, p. 283,—I will refer those who are curious on this subject, to Metzger, p. 328; and Valentini Novellæ, App. 3. *De stillicidio sanguinis in hominis violenter occisi, cadavere conspicui, an sit sufficiens præsentis homicidæ indicium?*"

The many causes of sudden or suspicious death, could be very imperfectly discovered, even by medical practitioners, in the dark ages, when prejudices and superstition prevented the study of anatomy. It was no sooner than the year 1315, that Mondini gave the first public demonstrations on the human subject in the University of Bologna; and it was not until 1334, that human dissection was permitted in France, in the celebrated medical school of Montpellier. About this period, Frederick II. of Naples, authorized one annual dissection in his capital. This legalization of anatomy, was the revival of medical science in Europe.

The first cases in which medical witnesses were summoned to assist the judge, were after the establishment of the inquisition by Pope Innocent III. A.D. 1204, when torture was inflicted to extort confession. This mode of arriving at truth, was too favourable to screen the indolence or incapacity of the judges, not to be adopted by other tribunals. Accordingly the rack, and other modes of inflicting the extreme of suffering compatible with life, passed into the codes of almost all European nations, from which they are not yet altogether expunged; and medical men were summoned by the tribunals to superintend these horrible scenes, to mark how far fiend-like ingenuity could protract human sufferings, without allowing to the victim the last refuge of human misery. Accordingly, we read in the works of the early medical jurists, observations on the mode of applying the torture in criminal trials.

It is humiliating to acknowledge, that even now a species of torture is enforced by British laws in the army and navy, and in civil cases, by means of the tread-mill, too often it is to be feared without proper discrimination of age, sex, or state of health.

But medical jurisprudence, as a science, cannot date farther back than the middle of the sixteenth century. The Emperors Rudolf, Sigismund, Albert, and Maximilian I., had successively attempted reforms of the criminal codes of Germany, by the introduction of a uniform system of legislation; but this idea was first reduced into practice by George, Bishop of Bamberg, who published, in 1507, a German penal code, drawn up and systematized by John, Baron of Schwartzemburg, which was speedily adopted in the petty States of Bayreuth and Anspach, and afterwards in Brandenburg. The other States of Germany, from narrow views of self-interest, and the jealousy of neighbouring innovations, for some time resisted the introduction of this code; and even Charles V., in the plenitude of his power, made two unsuccessful attempts to persuade the diet of Nuremberg to adopt the project of a similar code; but his perseverance finally prevailed, and the diet of Ratisbon, in 1532, proclaimed, as the law of the empire, the criminal code since well known by the title of *Constitutio Criminalis Carolina.* This celebrated body of jurisprudence, first published in 1553, was founded on that of Bamberg, and both were remarkable as requiring the evidence of medical men in all cases where their testimony could enlighten the judge, or assist the magistrate, as in cases of personal injuries, murders, pretended pregnancy, abortion, infanticide, hanging, drowning, poisoning, &c. This is the true era of the dawn of legal medicine; and we must regard Baron Schwartzemberg as the father of medical jurisprudence, and Germany as the country which gave it birth.

To the same nation we must attribute the glory of having produced the man who first dared to throw the shield of medical science over the victims of a barbarous and dark fanaticism.

The belief in the powers and influence of witches and sorcerers was in full force in the sixteenth century.

It is computed, that in Lorraine, nine hundred persons, of both sexes, were burnt alive in fifteen years for the imputed crime of sorcery; and that, in the Electorate of Treves alone, within a few years, six thousand five hundred individuals had perished in the flames for the same imaginary crime. In various parts of Germany and France, instances of supposed demoniacal possession were perpetually occurring; and at Freidberg public prayers were ordered to assuage this dire calamity. Weiher, physician to William, Duke of Cleves, had the boldness openly to impugn these superstitious notions, in a curious work entitled, *De Præstigiis Dæmonum et Incantationibus*, printed at Basil, in 1568. He undertook to prove, that magicians and demoniacs ought to be considered as unfortunate persons, subject to hysteria and hypochondriasis, and that they should rather excite pity for their infirmities, than be obnoxious to punishment; and he ridiculed the ordinary modes of persecution to which these unhappy beings were subjected.

This attack on a popular superstition, and on a powerful and lucrative engine of clerical influence, aroused alike indignation and vengeance against the daring innovator; and Weiher was himself arrested as a magician, dragged before a tribunal, and owed his liberty and life to the influence and earnest solicitations of his ducal patron. Weiher was too enlightened for the age in which he flourished; for we find his opinions attacked in no measured terms by two of his contemporaries, Erastus and Scribonius.*

The belief in diabolical illusions and witchcraft was entertained in this country so late as the seventeenth century. Sir Thomas Browne, the author of the Religio Medici, who was called on by Lord Chief Baron, Sir Matthew Hale, to give evidence in the cases of two unfortunate persons indicted for having bewitched two children, and caused them to have fits, who were tried and executed at Bury St. Edmonds; deposed, "He was clearly of opinion that the fits were natural, but heightened by the devil, co-operating with the malice of the witches, at whose instance he did the villanies," and he added, "that in Denmark there had been lately a great discovery of witches who used the very same way of inflicting persons by conveying pins into them." This relation of Sir Thomas Browne, says the historian of the case, made that good and great man, Sir Matthew Hale, doubtful; but he would not so much as sum up the evidence, but left it to the jury with prayers that the great God of heaven would direct their hearts in that weighty matter. The jury accordingly returned a verdict of guilty; and the executions were amongst the latest instances of the kind that disgrace the English annals.

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* Erasti Disputatio de Lamiis. *Basil*, 1572. 4to. Scribonius de Sagarum Natura et Potestate. *Helmstadt*, 1584. 4to.

Sir Thomas Browne was born in 1605, was a celebrated physician in London in 1646, and was knighted by Charles II.

The publication of the Caroline Code very naturally attracted the attention of the medical profession, and many of its members commenced the study of forensic medicine. The kings of France soon felt the necessity of a similar code. In 1556, Henry II. promulgated a law, by the virtue of which death was inflicted on any woman who concealed her pregnancy, and destroyed her offspring. In 1606, Henry IV. presented letters patent to his first physician, authorizing him to appoint two surgeons in every city and important town, whose exclusive duty it should be to examine all wounded or murdered persons, and make reports thereon. This law was amended by Louis XIV. in 1667, who declared that no report should be received, unless sanctioned by one of these surgeons. These were named medical councillors to the king, they were often appointed by court intrigue, and became so corrupt that they were suppressed in 1790. There are still, however, district medical reporters in France, as will appear hereafter. (Foderè op. cit.) In 1692, physicians were associated with surgeons.

Various detached treatises on different branches of legal medicine appear to have been produced towards the close of the 16th century. Ambrose Paré wrote on monstrous births, simulated diseases, and on the art of drawing up medico-legal reports, 1575. In 1598 Severin Pineace (or Pinæus) published at Paris his treatise *De notis Integritatis et Corruptionis Virginum;* a book still quoted on that subject.

The earliest systematic work on legal medicine is unquestionably the book *De Relationibus Medicorum* of Fortunato Fidele, published in 1598 in Sicily. As might be expected in his age and country, the opinions of this physician are greatly warped by his servile deference to the dicta of the canon law, and his submission to its clerical expounders. It consists of four books, of which the following may be received as an outline of the contents, viz. I. On Public Food; the Salubrity of the Air; Pestilence. II. Wounds; Pretended Diseases; Torture; Injuries of the Muscles; Medical Errors. III. Virginity; Impotence; Hereditary Diseases; Pregnancy; Moles; the Vitality of the Fœtus; On Birth; Monsters. IV. Life and Death; Mortality of Wounds: Suffocation; Death by Lightning and Poisoning.

The rapid progress of anatomy in the commencement of the 17th century, by the labours of Sylvius, Vesalius, Fallopius, and Eustachius, had a surprising influence on the progress of medico-legal investigations, which became speedily apparent in the publication of the great and invaluable *Quæstiones Medico Legales* of Paulo Zacchia; which appeared in successive volumes from 1621 to 1635.

Zacchia was one of the most eminent physicians of Italy. His celebrity brought a vast body of facts on medical jurisprudence under his cognizance; and his work, which has gone through many editions,is still regarded as the great magazine of medico-legal lore, illustrated by immense erudition, and by a subtile and refined discrimination. Though Zacchia be tinctured with the superstition of his age, in what relates to demoniacal possession, and some other subjects, yet his judicious remarks on the gross injustice and impropriety of classing as demoniacs those females in whom suppressed catamenia had produced mania, or men in whom frenzy had originated in a melancholic temperament, place his physiological reasoning and his medical indications in a favourable point of view; and, perhaps, we ought to place his recommendation in such cases, not to neglect the prayers of the church, while suitable remedies are prescribed, as much to his anxiety to avoid offence, as to his faith in the efficacy of the former.

With the imperfections that were unavoidable in an age in which physiology was in its infancy, chemistry imperfect, and ere our illustrious countryman Harvey had demonstrated the circulation of the blood, the work of Zacchia will ever be considered as one of the landmarks of medical jurisprudence, and remain a stupendous monument of his learning and sagacity. It was written at different times; abounds in repetitions, and occasionally in contradictions; circumstances which render it better suited for the consultation of the learned than the information of the student.

The following is an outline of the contents of the first volume. *First Book:* Age; Legitimacy; Pregnancy; Superfœtation and Moles; Death during Delivery; Resemblance of Children to their Parents. *Second Book:* Dementia; Poisoning. *Third Book:* Impotence; Feigned Diseases; The Plague and Contagion. *Fourth Book*: Miracles; Rape. *Fifth Book:* Fasting; Wounds; Mutilation; Salubrity of Air, &c. The second volume is filled with casuistical questions. This work is highly esteemed as one of great authority. Zacutus Lusitanus, in alluding to its value, exclaims: emi, vidi, legi, obstupui. It is justly considered the most celebrated of all the Italian works on the subject.

The next important step in the history of our science is due to Harvey, who investigated the difference between the lungs of the fœtus and of an infant that had breathed, and pointed out how this fact might be available in alleged cases of infanticide. It should, however, be admitted, that long before, the difference in colour, consistence, and weight, between the fœtal and adult lungs of animals, had been remarked by Galen, but who had not applied it to any practical use.

Almost at the same time appeared two valuable treatises by Melchior Sebiz, at Strasburg, viz. *De Notis Virginitatis* (1630) and *Examen Vulnerum* (1638). In the first he maintained that the existence of the hymen was the indisputable mark of virginity; an inference which was warmly denied by Orazio Augenio, and defended by the celebrated Pietro Gassendi (*Opera* VI.), &c. In the second he drew an important distinction between wounds necessarily fatal, and those which become so incidentally.

We must give the next important step to the Danish physician, Thomas Bartholin, who carefully investigated the period of human utero-gestation; and, having confirmed the opinions of Galen and Harvey, respecting the difference between the lungs before and after the first respiration, proposed the hydrostatic test for solving the question, and pointed out the best method of rendering it available in medico-legal investigations. (*De Pulmonum substantia et Motu.* Hafniæ 1663). The rationale of this process was more fully explained by Swammerdam in a tract, published at Leyden, in 1677—and its first practical application was made in 1682, by Jan Schreyer, after it had been investigated by Thurston and Carl Rayger.

This process is the celebrated *Docimasia Pulmonum;* which, till within a comparatively recent period, was considered as an irrefragable test of the question whether or not the child had breathed; but which has given rise to a keen controversy which I shall have afterwards an opportunity of examining. See *Infanticide.* About this period the work of Ambrose Paré, published 1575, which was regarded for nearly a century the only standard authority in France, was superseded by the more comprehensive treatises of Gendri, of Angers, in 1650, of Blegni, of Lyons, in 1684, and of Devereux, of Paris, in 1693. Louis is, however, with great justice, considered as the first who promulgated a just idea of the science to his countrymen. He flourished about the middle of the last century, and will be noticed in the history of that period.

While these important steps were in progress, Germany, the country where medical jurisprudence took its rise, had instituted public prelections on this important branch of medical and forsenic education. About the middle of the 17th century, Michaëlis gave the first lectures on this subject at Leipsic, which were followed by those of Bohn, Professor of Anatomy and Surgery in that city, who, before the end of that century, had published his valuable works *De Vulnerum Renunciatione*, and *Dissertationes Medicinæ Forensis* (1689), and these were speedily followed by a tract *De officio Medici duplici, Clinico et Forensi* (1704). In the same period appeared the interesting investigations of Gottfried Welsch, and of P. Amann, on the fatality of wounds.* The celebrated work of Licetus, *De Monstris*, appeared in 1669 at Amsterdam; and it would be unpardonable to omit the vast accessions to medico-legal knowledge unfolded in that noble pathological collection, the *Sepulchretum* of Bonnet. (Lugd. 1700, 3 tom. folio). The mode of conducting medico-legal investigations obtained some attention in France during the seventeenth century, but its institutions were extremely imperfect compared to those of Germany even to a much later period.

The following were among the German authors of the 18th century: John Bohn, De Renunciatione Vulnerum, 1689, 4to. Amsterdam. Valentini, Pandectæ Medico-Legales, 4to. Francof. 1702. Fred. Boerner, Prof. Med. Wirtemburg, 1723. Several Dissertations. Kannegeiser, Inst. Med. Leg. Michael Alberti, Prof. Med. Hall.-Systema Jurisprudentiæ Medicæ Schneeberg, 4to. 1725. tom. vi. Zittman, Medicina Forensis, 4to. Francofurti. Richter, Decisiones Medico-Forenses. Teichmeyer, Institutiones Med. Leg. 4to. Jenæ 1740. Stark, De Medicinæ Utilitate in Jurisprudentia, 4to. Helmont, 1730. Hebenstreit, Anthropologia Forensis, 8vo. Lipsiæ, 1753. Ludwig. Institutiones Medicinæ Forensis. Fazellius, Elementa Medicinæ Forensis.

The first German work of authority was Bohn's (1689), in which he attempted to discriminate what wounds were necessarily fatal. The next was Valentini's *Pandects*, 1702. Michele Bernardo Valentini published his *Pandectæ Medico-legales* in 1702 (Francofurte), and his *Novellæ* in 1711, which were incorporated, in 1722, into his *Corpus Juris Medico-legale.* This great work contains an excellent review of all that had been done before his time, and is considered by some as equal in value to the work of Zacchia. Valentini was fully aware of the importance of his subject, and strenuously insists, in the preface, on the necessity of cultivating this branch of medical knowledge. Several Professorships for teaching juridical medicine were about this period founded in the German Universities; and very useful though sometimes too diffuse treatises on the subject issued from the German press. The number of successive authors becomes now so great, that I cannot, in this sketch, attempt to mention all, far less to characterise them.

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* Welschii Rationale Vulnerum Lethalium judicium, 1660.
Ammanni Irenicum Numæ Pompilii c. Hippocrate, 1698.
——— Praxes Vulenrum Lethalium, 1701.

Zittman, Boerner, Kannegeiser, and Teichmeyer, each published systems of various, yet conspicuous merit. The *Institutiones Medicinæ Legalis* of the latter, long formed the manual of the student and the text-book of the professor. The clear and forcible reasoning of Stoerck (*De Medicinæ Utilitate in Jurisprudentia*, Helmont 1730) vindicated the high importance of this branch of knowledge. This author very ably advocated the importance of medical knowledge in legal investigations. But the *Systema* of Alberti, the professor of medical jurisprudence in the University of Halle, in six quarto volumes, was the most laborious and complete work of that century. The writings of this learned person are obscured by his devoted attachment to the mysticism of the Stahlian school; yet the industry with which he has collected an immense body of facts, renders his work a precious mine of medico-legal information. His example appears to have stimulated other physicians to publish collections of cases; and curious additions were made to our knowledge by Loesve, Reichter, Budæus, Troppanneger, Fritch and Wolff, Hermann, Clauder, Herzog, and Parmeon, which are particularly valuable to those who may be called to exercise the profession in Germany.

The next author of celebrity was Plenck, who published his " Elementa Medicinæ et Chirurgiæ Forensis, 1781. Then followed the lectures of the illustrious Haller, on Juridical Medicine, which were based on the Institutes of Teichmeyer, but greatly amplified and improved. These celebrated lectures were afterwards published in three volumes, octavo, entitled, " Vorlesungen über die gerichtliche Arzneiwissenchaft, 1782. Daniel published his Bibliotheca of State Medicine at Halle, 1784, entitled " Bibliothek der Staatsarzneykunde." Several other important German works appeared towards the close of the eighteenth century, some illustrative of particular questions of legal medicine, and some elementary productions which deserve notice. Among these are Sikora's " Conspectus Medicinæ Legalis, Pragæ, 1792; Loder's first lines, " Anfangsgründe der Medicinischen Anthropologie und der Staatsarzneykunde," 1793; Metzer's system, "System der Gerichtlichen Arzneiwissenschaft," Koningsb., 1793; Latin, by Keup, 1794; Muller's Delineations, "Entwurf der Gerichtlichen Arzneiwissenchaft," Francf.

Those who may be desirous of obtaining the titles of the German works or essays, omitted in this sketch, most of which refer to wounds, poisoning, and infanticide, will find the necessary information in the Bibliotheque Medicale of Plouquet, in the works of Struvius and Goelicke, and in the "Collectio Opusculorum Selectorum ad Medicinam forensem Spectantium, Curante. Dort," F. C. T. Schlegel, Leipsiæ, 1785—1800. Dr. Beck gives a list of the titles inserted by Schlegel; but these, and a vast number of others, will be found in the last works to which I have referred, and these are in the possession of most medical practitioners throughout the world.—The Cyclopædia of Practical Medicine, London, 1834; and Forbes' Medical Bibliography, 1835.

The eighteenth century commenced with happier prospects for this branch of science, and the press teemed with important works on legal medicine. As early as 1700 we find an admirable treatise on the diseases of artificers by Bernardino Ramazzini, of Padua. His attention had been called to this subject by observing how frequently a fatal asphyxia occurred to persons employed in clearing sewers and privies; and this accomplished man extended his inquiries to the more remarkable diseases of artizans of various denominations. Ramazzini's work, *De Morbis Artificum Diatriba* is still a standard work, and has been commented on by several writers, even so late as 1822. It has also been translated into many languages, and is a standard work in all civilized countries.*

During the last century little had been done, in Italy, towards the advancement of medical jurisprudence or police. Beccaria's work appeared in 1749, entitled "Scriptura Medico-legalis," and soon after Bonni's "Instituzioni Teorico Pratiche di Chirurgia.

The science had made little progress in France until after the middle of the eighteenth century. In 1788 Professor Louis commenced the publication of his Memoirs on the Certainty of the Signs of Death, on drowning, on the means of distinguishing suicide from homicide in cases of hanging.

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* This production had led the late Mr. Thackrah to publish his instructive and valuable work on the same subject, which passed through two impressions in a year. (The Effects of Arts, Trades, and Professions, and of Civic States and Habits of Living, on Health and Longevity: with suggestions for the removal of many of the Agents which produce Disease and shorten the duration of Life. Second Edition, 1832.)

His consultations on the cases of Calas, Montbaillet, Syrven, Cassagneux, and Baronet, which are preserved in the Causes Cèlébres, are models of medico-legal reasoning, and exalt him as a jurist. He also examined, most minutely, the signs of real and pretended pregnancy, and was the first who publicly taught jurisprudence in France.

The Courts of France had decided for the legitimacy of several persons born twelve, and even thirteen months, after the death of their putative father. The famous case of Villeblanche, born 320 days after such an event, called forth the Mémoire of the celebrated Louis, President of the Royal College of Surgeons in Paris. In this dissertation, Louis attacked the legitimacy of those pretended cases of retarded birth with powerful arguments, in which he was seconded by Astruc and Bouvart; but was vehemently opposed by Le Bas and Antoine Petit. This gave rise to very able publications on both sides, in which Bertin Pouteau and Vogel bore a part; but the victory remained with Louis and his adherents.

Winslow discussed the moral, political, and religious relations of the Cæsarean Operation; Lorry investigated the subject of survivorship with success. Salin examined the question of poisoning, and undertook to prove that one Lamotte, who had been buried for sixty-seven days, had died from the effects of corrosive sublimate.* This inquiry led to important results. About this period Lafosse endeavoured to distinguish the phenomena caused by death, from the effects of injuries inflicted on the living body. He also described the positive signs of pregnancy and parturition.

In the year 1789 Professor Chaussier read his excellent Memoir before the Academy of Dijon, on the great importance of juridical medicine, and in it he treated of several important forensic questions. In it he enforced the necessity of the careful personal examination, by the medical man, in all cases of violence, as blows and wounds; and pointed out the precautions he should adopt in such visits. He gave admirable models of reports, and shewed the attention which was necessary to arrive at truth: and to enforce his precepts still more, next year he delivered a full course of lectures on legal medicine to numerous pupils. Towards the close of the last century the preceding authors, in conjunction with Professor Mahon, compiled the elaborate articles on Medical Jurisprudence in the Encyclopædie Methodique. Such were the materials, says Foderè, which enabled me to publish my first systematic work in 1796. The subject now claimed the attention of the existing government, and became generally patronised.

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* Recueil Periodique de la Sociéte de Med. T. vii.

In 1796, Foderè published the first edition of his celebrated work, in three octavo volumes, entitled, "*Les lois eclairèes par les Sciences Physiques, ou Traite de Medicine Legale, et d'Hygiene publique.*" This learned professor was the author of many other works of high reputation.

In the present century, France has taken the lead in this science. The great work of Foderè was soon followed by the establishment of a professorship of forensic medicine in Paris, another at Strasburg, and a third at Montpellier. The first was conferred on Mahon, who obtained great celebrity as a teacher; but the posthumous publication of his lectures has not confirmed his reputation. The arrangement of the whole is defective, and the matter is very slovenly put together, being in a great measure made up of excerpts from French authors, and translations from German writers. It is no doubt, the duty of a public teacher to collect his facts from all sources, and it is his duty rather to aim at giving a fair view of the present state of his subject than to affect originality; but those who take the trouble of examining the small volume of Mahon, will be surprised how little pains he has taken to clothe the facts in his own words.

The chair of Montpellier was conferred on René, whose advanced age rendered him little able to perform its duties.

The first Professor at Strasburg was Noel, who is said to have left interesting manuscript lectures, which, I believe, have not been published.

Several valuable works appeared in the early part of the present century. Vigné, of Rouen, published his valuable production in 1805. In 1807, the posthumous work of Professor Mahon was edited by Fautrel. *Medicine Legale et Police Medicale de P. A. O. Mahon*, Prof. de Med. Leg. &c. avec quelques notes de Fautrel. About this date, Belloc, a surgeon at Agen, published a small but sensible treatise, *Cours de Medicine Legale, Theorique et Pratique*, de J. J. Belloc, Chirurgien à Agen. In 1808, Marc translated from the German, the Manuel of Rose on Medico-legal Dissection, and enriched it with many original observations; to which he also subjoined two instructive dissertations—one on the *docimasia pulmonum*, and the other on *death by drowning. Manuel d'Autopsie cadaverique Medico-Legale, &c.* In 1812, Ballard translated from the German, of Metzger's *Principles of Legal Medicine*, already noticed, and his notes are replete with information.

In 1813, Professor Foderè enlarged his work, which may be considered a new one, to six octavo volumes; four on legal medicine, and two on medical police. The renowned author divides his work into three parts; viz. the *First*, comprehending subjects of a mixed nature, or those which admit of application to civil as well as criminal cases, "*Medecine Legale mixte.*" The *second* exclusively relating to criminal jurisprudence, "*Medecine Legale Criminelle*;" and the *third*, to medical police, "*Medecine Legale Sanitaire.*"

The work opens with a learned introduction, in which the importance of the science is fairly examined, and its history pursued with much detail, from its origin, to the period at which the author wrote. The qualifications of the forensic physician are also considered, and the different circumstances opposed to the success of his labours, enumerated and appreciated. Then follow in succession the subjects of the first division, viz. the different ages of human life, puberty, minority, majority, with the anomalies to which the natural growth and developement of the body are liable. Personal identity and resemblance. The relative and absolute duration of life. The grounds of prohibition in testatorship, such as habitual, periodical, and temporary insanity; suicide; deaf and dumb state; somnambulism; intoxication. The qualifications of testators and witnesses. Marriage and divorce. Pregnancy, true and false. Parturition, and the signs denoting the death of the fœtus in utero. Paternity and filiation. Premature and retarded births. Monsters. Hermaphrodites. Survivorship. Signs of real and apparent death. Treatment of the different varieties of Asphyxia. Certificates of exemption, and diseases which exempt. Feigned, dissimulated, and imputed maladies.

The *second* division commences with the third volume, and includes, in their respective order, chapters on the examination of bodies found dead. The distinction of assassination from suicide. Wounds. Poisoning. Rape. Abortion. Concealment and substitution of the offspring; and Infanticide.

The *third* division, with which the fifth volume commences, successively treats of the preservation of the human species, and of the means of remedying its physical degeneracy. Contagious, hereditary, and epidemic diseases, and the precautions to be adopted against them. The medical police of cities, with regard to aliment, arts, manufactures, and attention to the sick. Military and naval hygiene; and, lastly, the medical police of hospitals and prisons.

This is universally allowed to be the most valuable systematic treatise in the French language; it evinces great research, learning, judgment, and ability; but it is not calculated to instruct the British jurist. "It is unnecessarily prolix and minute, and is adapted only to the judicial courts of the continent." In 1817, Bertrand published his valuable manual. It is not calculated for British practice in courts of justice, though it is replete with scientific information.

The next work of great value which has appeared in France since 1800, is the system of Toxicology of M. Orfila. *Toxicologie Générale considérée, sous les Rapports de la Physiologie, de la Pathologie, et de la Medicine Legale;* and another—*Leçons faisant Partie du Cours de Medicine Legale, de M. Orfila*, 1821. This celebrated Professor has published many other valuable works, which are laid under contribution in the following pages. His Traité des Exhumations, &c. 1833, is largely quoted in the article Putrefaction, in this work. The author is now the most celebrated medical jurist in existence. In 1821, Professor Capuron published his admirable work relating to all obstetric inquiries.—*La Medecine Legale, relative à l'art des Accouchemens, par J. Capuron*, Doct. en Med., Professor des Accouchemens, &c. This production contains every thing valuable in the branch of medicine, of which it treats.

The various essays in the four voluminous French dictionaries of Medicine, and in the many periodicals of France, abound with medico-legal information. The treatises on infanticide, by Lecieux, on the proper manner of examining bodies for legal inquiries, by Renard; on perforation of the stomach, by Laisné; on ecchymosis and sugillation, by Rieux, published in one volume in Paris, in 1819, ought to be in the possession of every one engaged in the practice of medicine. The works of Briand, 1828—*Manuel complet de Medecine Legale, &c.*, and of Sedillot, 1830, contain all the valuable conclusions of French jurists, on legal or forensic medicine. The treatise of M. Devergie, just published, January, 1836, ought to be in every medical library.

In Germany, this century has produced the excellent compends of Schmid and Müller (Landshut 1804), Metzger (Kœnigsberg, 1805), Masiers (at Rostock, 1810), and of Wilberg (Berlin, 1812.) Rose published a very valuable tract on Medico-legal dissection. The useful Toxicologia of Plenck appeared in one volume, at Vienna, in 1801. An useful compend on Pharmaco-chemical Medical Police, which forms the best treatise we have on the preparations and adulterations of food—on the proper kinds of culinary vessels—on the venom of snakes, insects, &c. and the police of apothecaries' shops, was published by Professor Remer of Kœnigsberg in 1811, and was translated into French by Lagrange and Vogel, in 1816.

During this century, Italy has contributed some admirable treatises. That of Tortosa is the most scientific and elaborate of his country in the present age. It was written under the sanction of Caldani Franck, of Pavia, and Plouquet of Turin. It only embraces forensic medicine, and is entitled—*Istituzioni di Medicina Forense, di Guiseppe Tortosa*, Professore Medico della Commissione Dipartimentale di Sanita del Bacchiglione, 1809. It is divided into three parts, viz. 1. Comprehending all the principal objects of *Ecclesiastical* jurisdiction. 2. Subjects relating to the *Civil* courts. 3. Those which relate to the *Criminal* courts. The subdivisions of each part are arranged in the following order. PART I. Conjugal Impotence. — Conjugal Rites. — Monstrous Births.—Hermaphrodites.—Magic.— Of Persons possessed of Spirits. — Miracles. — Ecclesiastical Fasting. PART II. Age. — Pregnancy.—Birth. — Superfœtation — Cæsarean Operation. — Simulated and Dissimulated Diseases. PART III. Of Deflowering.—Sodomy.—Torture. —Legal Examination of Wounds, and Dead Bodies. — Poisoning. — Infanticide. — Homicide by wounding.—Fœticide.—Accidental Death.

Another valuable work is by Barzelotti, entitled *Medicina Legale*, in the form of questions, which embraces the most important points of medical jurisprudence. The best edition of it is by Rossi of Bologna, which was published in 1823.

During the present century, America has contributed to advance the Science of Medical Jurisprudence. In 1823, Dr. Theodoric Romeyn Beck published his *Elements of Medical Jurisprudence*, of which two editions have since appeared in this country. This work is a monument of research, industry, and talent. The author confines himself to Medical Jurisprudence or Forensic Medicine, and excludes State Medicine, or Medical Police. The work consists of nineteen chapters: I. Feigned diseases; II. Disqualifying diseases; III. Impotence and Sterility; IV. Doubtful sex; V. Rape; VI. Pregnancy; VII. Delivery; VIII. Infanticide; IX. Legitimacy; X. Presumption of Survivorship; XI. Age and Identity; XII. Mental Alienation; XIII. Persons found dead; XIV. Wounds on the Living Body; XV. Poisons; XVI. and XVII. Mineral Poisons; XVIII. Vegetable Poisons; XIX. Animal Poisons. There is also an Appendix. All the subjects treated by Dr. Beck, are considered most minutely and generally illustrated by numerous cases which occurred in courts of justice. Dr. Duncan, jun. and Dr. Male, two of our best medical jurists, have declared the work as one of the best hitherto published in this or in any other country. I fully agree with them in this opinion, and have accordingly laid it under great contribution in arranging the following pages. So far as it extends, there is no work in the English language equal to it for laborious research and scientific information. It is, however, confined to forensic medicine, and necessarily omits a vast number of questions on State Medicine, a knowledge of which is indispensably necessary to the medical practitioner; and which the justly celebrated author intended to elucidate in another work on Medical Police. The present production is an admirable system of forensic medicine, which, as Dr. Duncan observed, "embraces almost every valuable fact relating to it. Each of its diversified departments has been investigated so minutely, that few cases can occur in practice, on which it will be necessary to seek elsewhere for farther information." This criticism is fair, candid, and just; but only refers to one department of State Medicine, and not to the whole. As a book of reference and authority, and as a report of medico-legal decisions, the work is unequalled in our language. It ought to have a place in every medical library. It is not, however, a perfect production. It contains a vast number of judicial opinions and law cases, of little or no interest to the great mass of medical practitioners in this country. It omits many subjects of interest to the profession, such as Medical Ethics, the laws relating to the education and practice of the Medical Profession, and the laws relating to Public Health. These, it is true, are subjects of Medical Police or Public Medicine, but they are as deeply important to all engaged in the practice of Medicine, as pure forensic questions. This being my firm conviction, I have accordingly introduced them in this work.

Such is the history of medical jurisprudence and state medicine, from the earliest age to the present period, except as regards this kingdom, and this I shall now introduce.

It is a matter of no small surprise, that this science has scarcely been patronised in this country. Britain, which has so distinguished itself in almost every science; which has made legislation its study and its boast, has, hitherto, neglected a branch of medicine, so highly cultivated in all other civilized nations. In proof of this statement I must observe, that the science of medical jurisprudence formed no part of medical education in this country until the present century; nor was there a single work published on the subject before the last quarter of the past century. Many medico-legal questions were discussed in our periodicals, but no work appeared in the United Kingdom, expressly treating of the subject, previous to the small and imperfect production of the first Professor Dease, of Dublin, the author of the work on Injuries of the Head, which was published in 1783, entitled, " Remarks on Medical Jurisprudence," dedicated to Lord Clonmel, Chief Justice of Ireland. " This was the first attempt to write on medical jurisprudence in our native language."*

The next in succession was also an imperfect production, by Dr. Samuel Farr, in 1788, entitled, " Elements of *Medical Jurisprudence*," and was an abstract of the work of Faselius, already noticed. In or about this period the first professor Duncan, of Edinburgh, delivered a private course of lectures on the subject, and was chiefly instrumental in directing the attention of the profession to its importance. In 1808 Dr. Robertson published a *Treatise on Medical Police*, in two volumes. In 1815, Dr. Bartley, of Bristol, published a most imperfect work, entitled, a *Treatise on Forensic Medicine*. The first respectable and original production that this country contributed to medical jurisprudence, was " *An Epitome of Juridical or Forensic Medicine, for the Use of Medical Men, Coroners, and Barristers*," *by Dr. Male, of Birmingham*, who is justly considered the father of the science in Great Britain and Ireland. This work was published in 1816. It embraces the following subjects:—Poisons, wounds and contusions, infanticide, pregnancy, abortion and concealed birth, pretended delivery, rape, hanging and strangulation, drowning, dangerous inebriety, insanity, pretended diseases, imputed diseases, apparent death, impotence, hermaphrodites. These subjects are described in one hundred and ninety-nine octavo pages.

It is true, that there are many valuable discussions on various medico-legal questions in the writings of Mead, Monro, the Hunters, Denman, Percival, and others; but these eminent individuals have no claim to rank among our authors on medical jurisprudence. Dr. John Gregory's Duties and Qualifications of a Physician, and Dr. Percival's Medical Ethics, contain much valuable information on the moral duties of the profession, and which naturally comprise the rules that ought to guide them in public and private practice, and consequently in state and forensic inquiries. There are also admirable essays on certain medico-legal questions, such as Dr. Hunter's, " On the Uncertainty of the Signs of

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* Dr. Gordon Smith's Analysis of Medical Evidence, 1825. Appendix, p. 181.

Murder in the Case of Bastard Children," 1783. Dr. John Johnstone's essay on *Medical Jurisprudence in Cases of Madness*, 1800; Dr. Haslam's admirable essay on Medical Jurisprudence, as relates to Insanity according to the Law of England, 1817; re-published with other Tracts by Dr. Cooper, Philadelphia, 1819; and Dr. Hutchinson's elaborate "*Dissertation on Infanticide*," 1819.

The next, and by far the most comprehensive work that had appeared in this country, to the date last-mentioned, was Dr. Gordon Smith's, entitled, Principles of Forensic Medicine, systematically arranged, and applied to British Practice, 1821. This work rapidly passed through three editions. Its contents were arranged as follows:—1. Questions relating to the extinction of life. 2. Questions arising from personal injuries not involving a fatal issue. 3. Disqualifications for the discharge of offices, or the exercise of social functions. 4. Miscellaneous questions. This production was most favourably received by the profession. The author commenced a course of lectures, and a few followed his example. In 1823, the conjoint treatise of Dr. Paris and J. S. M. Fonblanque, Esq., Barrister at Law, was published in three volumes, octavo, entitled, "*Medical Jurisprudence.*"

In 1825, Dr. Gordon Smith published his "Analysis of Medical Evidence," in 1827 Dr. Lyall his little volume "on the Duration of Pregnancy;" in 1829 Dr. Gordon Smith his "Hints for the Examination of Medical Witnesses," and the same year, Mr. Forsyth his "Synopsis of Modern Medical Jurisprudence, Anatomically, Physiologically, and Forensically Illustrated, for the Faculty of Medicine, Magistrates, Lawyers, Coroners, and Jurymen."

Towards the end of 1831, the first edition of this work appeared, entitled, "A Manual of Medical Jurisprudence, compiled from the best Medical and Legal works, comprising an account of: I. The Ethics of the Medical Profession; II The Charters and Statutes relating to the Faculty; and, III, All Medico-legal Questions, with the latest decisions: being an analysis of a course of lectures annually delivered in London, and intended as a compendium for the use of Barristers, Solicitors, Magistrates, Coroners, and Medical Practitioners." This work contained an account of medical ethics, the laws relating to the medical profession, and all forensic subjects noticed by preceding writers. It was very favourably received by the public as well as the medical press, and republished by Professor Griffith in America, as will appear by the notices appended to the present edition.

The last work, before the present edition of this, published in England, is by Mr. Chitty, the celebrated and voluminous legal author, entitled, "A Practical Treatise on Medical Jurisprudence, with so much of the Anatomy, Physiology, Pathology, and the Practice of Medicine and Surgery, as are essential to be known by Members of Parliament, Lawyers, Coroners, Magistrates, Officers in the Army and Navy, and Private Gentlemen, and all the Laws relating to Medical Practitioners, with explanatory Plates, Part I.

I feel it due to the profession to which I have the honour to belong, to state, that the present part of his work is almost entirely medical, anatomical, physiological, and pathological, with some legal references; all admirably arranged and executed, and most instructive to non-medical readers. It is a valuable treatise, and one well calculated to interest the legislature, the legal profession, the magistracy, and private individuals, and cannot fail to advance the interests of medical jurisprudence and state medicine.

In the preceding sketch of the history of MEDICAL JURISPRUDENCE AND STATE MEDICINE, I have necessarily confined myself to our monographic and systematic writers on the subject; and I deemed it a digression to allude to all essayists, and to those who have elucidated certain parts of it. Among these are the late Professor Duncan, of Edinburgh, the first public lecturer on medical jurisprudence in this country, whose valuable essays and reviews in *the Edinburgh Medical and Surgical Journal*, have contributed largely to advance the science in this country. His successor, Professor Christison, has given us a work on Toxicology, that will transmit his name to the latest posterity, as one of the most laborious, erudite, and experienced medical jurists that this or any country has produced. This work appeared in 1829, entitled, "*A Treatise on Poisons, in relation to Medical Jurisprudence, Physiology, and Practice of Physic*," the third edition of which is lately published.

The medico-legal writers in the *Cyclopædia of Practical Medicine*, and in our numerous medical periodicals, have also elucidated many questions of forensic medicine, and are entitled to much praise for their contributions. I shall briefly allude to the writers in the *Cyclopædia of Medicine* in alphabetical order:—Dr. Apjohn, of Dublin, on Spontaneous Combustion and Toxicology; Dr. Arrowsmith, of Coventry, on Infanticide; Dr. Beatty, of Dublin, on Impotence, Persons found Dead, Rape, Doubtful Sex, Survivorship, and Death after Wounds; and Dr. Montgomery, of Dublin, on Personal Identity; on the Signs of Pregnancy and Delivery, and on Legitimacy.

There are numerous other recent writers in the French Medical Dictionaries, Dictionnaire de Medecine et de Chirurgie Pratiques, and the Dictionnaire de Medecine, in the American Cyclopædia of the Medical Sciences, and in the celebrated German Dictionary of Medicine, Encyclopädisches Wörterbuch der Medicinischen Wissenchaft, now in course of publication. The Traité des Exhumations Juridiques, and the Leçons de Chimie appliquée à la Medicine Pratique et à la Medicine Legale, by M. Orfila, 1836, and Nouvelles Reschercbes, sur les Secours à donner aux Noyés et Asphyxiés, by M. Marc, 1836, are valuable additions to medico-legal literature.

PART I.

MEDICAL ETHICS.

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CHAPTER I.

ORIGIN OF MEDICINE—VENERATION FOR ITS CULTIVATORS.

All medicine is derived from God, and without his will it cannot exist or be practised. Hence the healing art, if disunited from religion, would be impious or nothing. Illness requires us to implore the Deity for assistance and relief, and humbles human pride. The seeds of the art, the wonderful cures, and the powers of remedies, are in the hand of God. He has beneficently supplied various remedies, and pronounces with our tongues, the fate, life and death, of man. Whence, we see the dignity of medicine, and what reverence is due to the Divine Author of it. Sacred history confirms this sentiment, "Every cure is from God." "The Most High created medicines out of the earth." Every thing we enjoy are the gifts of God: none but the impious ever doubted this truth; none but fools dared to deny it.

It is recorded that Jesus, the son of Sirach, was one of the first who attributed the origin of medicine to the Deity. And we also read in Scripture, "Honour the physician for the need thou hast of him, for the Lord hath created him."

"All medicine is from God, and without him it cannot exist or prosper; our art, disunited from religion, is either impious or nothing."* Such is the first precept in the moral statutes of the Italian Universities, and it is that of Roderic a Castro, in his Medico-Politica, and of the profession in all countries.

The fate of the sick and the success of medicines are in the hand of the Deity: "in him we live, move, and have our being;" and our curative means, and our knowledge of the nature and treatment of diseases, are subservient to his divine will and pleasure. He works with his own, and not with our hands; his power begins where ours ceases.* Without him man can do nothing good for himself or his species. His first duty is, therefore, due to the Creator and Conservator of the universe. In the first and unerring history of the world, we find that human aid was given during parturition by the midwives of Egypt, which proves the early practice of obstetric medicine. Some even contend that Adam was the first obstetrician. We likewise discover, that Solomon wrote very largely on the nature of animals and plants, from "the hyssop that grows out of the wall to the cedar of Lebanon;" and we are informed by profane authors of his time, that his writings were copied by the Greeks, Arabians, and finally by the Romans. Again we find, that Joseph commanded the physicians to embalm the body of his father. Gen. I. A. C. 1769. Some have pretended that Moses was initiated into the medicine of the Egyptians, and that to them he was indebted for a knowledge of the precepts he laid down in his writings.

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* "Omnis medicina a Deo est. Cœlitus delapsa non sine Dei consilio vivit agitque. Hinc ars nostra sine religione, vel impia vel nihil."—La Politica del Medico nell' esercizio dell' arte sua. Dal celebre Alessandro Knipps Macoppe, Professore di Medicina nell' J. R. Università di Padova. Milano, 1826.

The antiquity of medicine is proved by reference to the sacred volume, in which we find many of its precepts inculcated, the natural history of animals and plants recorded, diseases and their remedies described, and hygienic rules laid down for the preservation of health and prevention of human infirmities.†

The instinct of man and animals directs them to select what is salutary both in health and disease, and to avoid that which is pernicious. It is recorded, that the first of our species was, soon after his creation, rendered liable to diseases; and as he was also gifted with the knowledge of the nature of all the things that surrounded him, he was necessarily apprized of their noxious and sanative properties. Medicine was, therefore, almost coeval with man; and must have occupied his attention in the first days of his existence. The vicissitudes of season, the varieties of climate, the influence of the circumambient atmosphere, the action of surrounding bodies, and the construction of the human fabric, must have rendered diseases nearly coetaneous with mankind. The presence of bodily infirmity produces pain, and impels man to seek immediate alleviation, and to employ means for that purpose, either by instinct, experiment, or spontaneous exertion. The many accidents and injuries to which he was exposed in the early and rude ages, must have frequently obliged him, to suppress hæmorrhage, to remove the deformity of dislocation, and to adjust the painful fracture. Thus necessity conceived the art of medicine, reason nourished it, long use promoted it, and experience at length completed it, and made it absolute. The foundations of this art among mankind, were first laid by chance, instinct, and unforeseen events; these were improved by the success and recollection of former experiments; the results of observations, experiments, and remedies were carefully recorded, and a comparison was instituted between events already observed, with those of daily occurrence. The sick were exposed in the streets and highways; and inquiries made of passengers if they knew any remedy. The names of diseases, their remedies and events, were handed down from father to son among the ancestral traditions; and were at length inscribed on the walls and paintings of the public temples: a system of medical instruction was formed from these sacred records, which all were obliged to follow in the cure of diseases; a law alone that was the cause of the extermination of thousands, until the healing art was practised by certain individuals, as a peculiar calling. Such was the manner of cultivating medicine in the early ages, even after the deluge, by the Egyptians, Babylonians, Grecians, Germans, Indians, Assyrians, Chaldeans, and Portuguese; and afterwards in the islands of Cnidos, Cos, and Epidaurus.

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* "Deus propriis non nostris agit manibus. Incipit artis Dei potentia, ubi tua desinit." *Op. cit.*

† Gen. xl. Exod. xxi. Lev. xii. Ecclias. xlvii.

Ancient medicine, like all the early transactions of mankind, is a mixture of monsters, giants, demi-gods, and fables; and, therefore, I shall not notice the legends and dark archives of antiquity relative to the first epoch of the healing art, except by adverting to Ovid's allusion to Apollo, as the inventor of physic, in the following lines, which now grace the armorial bearings of our society of apothecaries:—

> " Inventum medicina meum est, opiferque per orbem
> Dicor; et herbarum subjecta potentia nobis."

All the ancient heathens agree in one point, that some Deity was its inventor, which is also confirmed by Hippocrates *(Liber de Vet. Med.)*, and by Cicero, in *Tusc.* Lib. iii. " *Deorum immortalium inventioni consecrata est ars medica.*"

The concurrent testimony of historians of all ages proves it to be the noblest and most useful of human pursuits; and hence the esteem and veneration universally entertained for its cultivators by mankind. The dignity of medicine arises from the nobleness of its subject and its end; its subject is the human body, which excels all other material bodies; its end is health, which is the greatest temporal blessing of man. The importance and dignity of medicine were felt and acknowledged in all ages and countries, both civilized and savage, because the severity of pain and dread of death, were almost coeval with the existence of the human race.

The heathens also highly esteemed the healing art. Democritus said it was the sister of philosophy; the latter removed affections of the mind, the former diseases of the body. Hippocrates said the ancient cultivators of medicine ascribed its origin to a divine source, in which he concurred, as also did Galen. This was likewise the belief of the primitive Christians: St. Austin observes, " Medicina non invenitur unde ad homines manare potuerit, nisi a Deo." *De. Civ. Dei.* But the healing art was rendered pre-eminent by the divine Redeemer having practised it, while he avoided all other human pursuits.

The excellence and pre-eminence of the healing art were admitted by the Roman orators and moralists. Cicero said, " In nulla re homines propius ad Deos appropinquant, quam salutem hominibus dando." Seneca observes, " quædam pluris esse quam emuntur; emis a medico rem inestimabilem vitam ac valetudinem bonam.

" A physician of genius," says Monfalcon, " is the most magnificent present that nature can make the world." Medicine was encouraged, cultivated, and practised by kings, princes, and pontiffs; the highest, wisest, and best of men. In proof of this position it may be stated, that Solomon, Saphoris, and Gyges, kings of Persia; Habidus, and Mithridates, kings of Pontus; Mesue, king of Damascus; Avicenna, prince of Cordova; Isaac, the adopted son of the king of Persia; Nicholas V., and John XXII., Roman pontiffs, illustrated medicine by their writings. Homer records the great esteem entertained for Machaon and Podalirius, the sons of Esculapius, in the Grecian army; Virgil, that for Japis, physician to Æneas; and Silius Italicus, that for Synalaus, the physician to Hannibal. All civilized nations conferred the highest privileges and honours on the practitioners of medicine. They were exempt from the performance of all civic duties; they were supported by the state in many countries; and ample, nay, prodigal rewards were bestowed upon them throughout the civilized world. The history of medicine affords abundant proof of this assertion.

All wise and prudent emperors and kings, duly estimated the utility and excellence of the healing art, and were extremely desirous of having learned and experienced physicians, to preserve their own and their subjects' health; and hence the honours, immunities, and privileges bestowed in every civilized nation upon the faculty. It is unnecessary to enumerate the vast number of temples dedicated to the early founders of physic, or refer to the rank so signally conferred on Hippocrates by the Athenians, or to the honours bestowed by all nations in succeeding ages on the profession. I may briefly mention, that the court physicians and surgeons of our own country have had titles and emoluments amply conferred upon them; and such is the custom of all nations in Europe.

Medical practitioners are those men to whom we confide our health, which is above all earthly concerns. To them are intrusted the existence of those that are most dear to us, and in their hands are placed the lives of our nearest connexions, and of the friends to whom we are most attached. All gradations of society are alike dependent on them, and must, sooner or later, require their assistance; for, from the earliest period of life to the last moment of existence, their skill may be exerted to preserve health, to arrest the progress of disease, or to smooth the approach of death. It is to physicians that all classes commit their health, which is above all treasure, the father confides his child, the husband his wife, the monarch as well as the peasant; they preserve the feeble infant from all the dangers to which it is exposed on coming into the world; their cares protect infancy, childhood, adolescence, manhood, and old age. At every period of life, man calls for the assistance of a physician, and he rarely implores in vain. The confidence placed in him is unbounded: health and life are committed to his care, and on him depend the comfort or misery of families. Hence it is, that no class of men enjoys the respect of every rank of society to such an unlimited degree, as the practitioners of the healing art; and hence it is that they have ever acquired the esteem and veneration of mankind.

That this confidence and esteem should be fairly merited, the father of medicine, and all his eminent successors, to the present period, required an oath of their disciples, the principal obligations of which were, the cultivation of every virtue that adorns the human character. A code of professional duties, or ethics, was arranged, which all were obliged to obey, and which still governs those who have been properly educated. But there never was a period in medical history, in which ethics was so neglected and violated as in this "age of intellect," nor the dignity of the science so degraded and disregarded. It is therefore necessary to inform the rising members of the profession, of those virtuous and noble principles which regulated the professional conduct of their predecessors, and procured that unbounded confidence and universal esteem, which was bestowed on them by society in every age and country. I shall, therefore, describe the ethics of the founder and father of medicine, and those of his successors to the present time, with the hope of exciting my readers to imitate their example, and practise those precepts which have always characterized the erudite and scientific portion of the profession.

CHAPTER II.

MEDICAL ETHICS OF HIPPOCRATES.

THE duties and qualifications of medical practitioners were never more fully exemplified than by the conduct of Hippocrates, or more eloquently described than by his pen.* He admitted no one to his instructions without the solemnity of an oath, the chief obligations of which were, "the most religious attention to the advantages and cure of the sick, the strictest chastity, and most inviolable secrecy about private or domestic matters, which might be seen or heard during attendance, and which ought not to be divulged."†

The father of physic strongly inculcated the necessity of the cultivation of piety and virtue; and held that his disciples should excel in religion and morals. He also maintained that they should acquire the most perfect knowledge of every form of disease, and of the best mode of treatment. He considered calumny and illiberality disgraceful, and the disclosure of the errors of a contemporary highly culpable. He was of opinion, that the morals of a medical practitioner should be excellent and unexceptionable, conjoined with gravity and humanity. He ought to be correct in every custom of life; and demean himself honourably and politely towards every rank in society, and thus will he promote the glory of his profession. To these precepts nature is the best guide. He is to retain in his recollection all remedies, their mode of preparation and application, and the use of all mechanical means which are employed for the cure of diseases. This is the beginning, middle, and end of medicine. Let him be cautious in his prognosis, and predict only those events sanctioned by observation and experience. In his approach to the sick, let his countenance be mild and humane, not rough, proud, or inhuman; and let him evince a sincere desire to afford relief; and employ all remedies with diligence and caution. He should be ready to answer all questions, establish constancy in perturbations of mind, allay tumult by reason, and be ever ready to afford relief in all emergencies. He is never to exhibit an improper or dangerous remedy, even to a common malefactor; but try those medicines approved by the majority of the profession. When a patient desires popular remedies, he is to be cautioned against them, but left to his own discretion. But if attendance is commenced without remuneration, the sick must not be abandoned. Any discussion relative to pecuniary matters is injurious, especially in acute diseases. When disease is rapid, there is no time to arrange concerning reward; it has no influence on a good practitioner, who is only anxious to preserve life, and enjoy the more noble gratification, the universal esteem of mankind. It is much better to accuse those cured of disease of ingratitude, than deny them aid when in danger.

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* He flourished about 460 years before the present æra.

† The Edinburgh University requires this oath on conferring the degree of M.D. and is the only university or college in this empire that binds its members by so serious and necessary an obligation.

Some, on account of friendship or acquaintance, expect attendance gratuitously, but these deserve neglect. In all cases the best remedies ought to be employed; and the reward should be in accordance with the custom of the faculty, and with the wealth or means of the sick. In some cases aid is to be afforded gratuitously, which will ensure more renown than if remuneration had been awarded. When an opportunity offers in the case of a stranger or necessitous individual, afford succour immediately. Some men are so avaricious as to extract riches from the most indigent; but these men seldom prosper, while the humane and good practitioner is considered an honour to his art. Consultations cannot be refused, even to the most necessitous. "This I affirm by an oath, that one medical man should never invidiously calumniate another, or rob him of his merit, or diminish the confidence of his patient." Such were the leading features of the code of ethics, inculcated by the immortal founder of physic;* the chief obligations of which have been recommended by all his successors down to our own time.

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* De Medico, de decenti Habitu aut decoro, Prenotiones.

It must be conceded that the first duty of a medical practitioner in common with his species, is to God, for his sovereign majesty, supreme excellence, and infinite goodness. The history of medicine, of all other sciences, comprises the most intimate acquaintance with the works of nature, and elevates the mind to the most sublime conceptions of the supreme Being, and expands the heart with the most pleasing ideas of Providence. It nearly extends through the whole range of the creation; and no other profession requires so extensive a knowledge of the works of Providence. The objects which engage the attention of the medical practitioner are the influence of the sun, moon, and heavenly bodies, the laws of their uninterrupted revolutions and various movements; the various productions of the earth, including the vegetable and mineral kingdoms, the innumerable variety of living creatures that fill the air, the earth and the waters; and the microcosm of the human body, with its wonderful organs, functions, and immortal principle. Now when we consider the creation, and conservation of all these objects, and their subserviency to human happiness, we can never reflect without the profoundest veneration upon the attributes of that Being from whom all these things have proceeded. We cannot help acknowledging what an exertion of benevolence creation was, of a benevolence how minute in its care, how vast in its comprehension!

The most eminent of the faculty have been distinguished for their piety; among whom we find the names of Harvey, Sydenham, Locke, Boerhaave, Arbuthnot, Winslow, Haller, Hoffman, Stahl, Baglivi, Steno, Helmont, Riverius, De Hean, Vesalius, Ruysch, Lancisi, Gaubius; and in our own day, Gregory, Baillie, Bateman, Davy; and many other illustrious men now in existence. They studied the sacred volume, which to use the language of Cicero when speaking of the twelve tables, is, "A little book that alone exceeds the libraries of all the philosophers in the weight of its authority, and in the extent of its utility." In it is to be learned the only complete history of the universe, the divine precepts of religion, which refer all honour and glory to the Author of all things, and good will to mankind. There is laid the foundation of all ethics, "do unto others as you would they should do unto you." This is the great and first principle of human conduct, it commands man to observe justice and benevolence towards his fellow man; duties which by their reciprocity lead to his own and the general good. Of all the calumnies launched against medical practitioners, there is none so diffused and so odious as that of irreligion. It is broadly asserted that medical men are Deists or Atheists. This is a popular error. A medical practitioner cannot be an anatomist and an Atheist, as nothing presents such strong proof of the existence of God, as the wonders of our organization and its functions. The wonderful relation between the structure and functions of all parts of the human body; the marvellous disposition of the bones and muscles; the distribution of the arteries and veins, and their anastomoses; the functions of the brain, heart, lungs, &c., every thing in the study of anthropology attests a superior intelligence. The origin and cessation of life manifest the peculiar power of the Deity. The reproduction of the species, the endowment of life and of mind, can only be ascribed to the same Being. The anatomy of a hair is sufficient to overthrow all the reasonings of materialists.

All the universities, schools, and colleges, inculcate and enforce the cultivation of religion. "Such is the connection between the Deity, religion, and a physician, that without God and religion, no physician can be successful."* This reflection of Broesiche's is a great moral truth. A religious physician will not arrogate to himself an absolute empire over the lives and health of men; he will not pretend to govern the progress of diseases; he will not consider himself the God of nature; but he will refer all things to the Supreme Being. "It is from Him he derives his light—it is on Him he calls for succour."

The practice of medicine requires the exercise of all the virtues. Whoever fulfils all the duties it imposes on him, obeys the most rigid moral laws. To cultivate religion, to love his country, and to be a truly good man, form the true character of the medical practitioner. It may be urged that there are exceptions; but they are few in number.

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* "Tanta est inter Deum, religionem, et medicum connexio, ut sine Deo et religione nullus exactus medicus esse queat." *Macoppe op. cit.*

In observing the different phenomena of life, physicians are continually obliged to recognize the omnipotence, goodness, and other attributes of the Deity; they cannot consider their art a sovereign power, because they too often find it to fail. It is to the Divinity they must attribute their success or failure. Such is true medical wisdom. Who knows so well as the medical practitioner the miseries of man, his infirmities, and the dangers which every moment threaten his life? Who so well knows the suddenness of death in the most robust constitutions? The whole history of man, and of the healing art, recalls to his mind the idea of a Supreme Being. He discovers in religion the powers opposed to all the annoyances inseparable from his ministry, and the real consolations against the ingratitude of mankind. It enables him to bear all the weaknesses and follies of the sick, to perform the beneficent powers of his art in the most disgusting instances, and to be the instrument in the hands of the Author of all, of affording relief, and diminishing the sufferings of humanity. Hoffman was right when he said, a physician ought to be a Christian—"*medicus sit Christianus.*"

There are intimate relations between religion, morals, philosophy, and medicine. It is well observed by the ancients, that there is a relation between certain physical states, certain characters of the intellectual faculties, and certain passions; that is to say, that according to the habits of the body, the proportion of the members, the colour of the skin, the disposition of blood vessels, lymphatics, nerves, &c., will thought and the train of ideas correspond. Many of the ancient sages found in the organization of man, compared with the functions of life, the solution of the most important moral phenomena.

Many physicians have written esteemed works on philosophy, and on the human mind. It is scarcely necessary to mention the names of Locke, Dugald Stewart, Thomas Brown, &c., nor can I omit the splended work of Cabanis, on the relations of the Physical and Moral States of Man. He has given a most luminous view of the relations between the physical and moral conditions, and followed Locke and Condillac.

Moral philosophy, medicine and philosophy, have numerous relations. Medical philosophy informs us of the formation of ideas, the rules which ought to regulate life, the course that leads to happiness, the influence of the different climates on the physical state of man, and on the institutions of society, that of regimen upon the intellectual faculties and passions, and that of diseases on the operations of the judgment. It embraces the operations which constitute the functions of intelligence, and determine the power of volition; it comprises the different characters of the passions, and supplies the basis of the moral condition. The faculties of the mind are intimately connected with the organization of man, and nothing can separate the study of his physical and moral states. I may briefly illustrate this position.

Vain attempts have been lately made by materialists, among whom are certain phrenologists, to prove that the mind is a mere function of the brain, and consequently dies with it; that the embryo has no mind or soul either in the uterus or at birth, but that its mind is built up by the five external senses, and is annihilated by death. Here is mere assertion without the slightest proof. According to this doctrine, life and mind are distinct, as the living infant, before or at birth, has no mind; but the materialists have not proved that the living brain of the infant in the womb is unconnected with soul: they merely assert it. If their conclusion were admitted, it would be no crime to destroy the fœtus in the womb, or even at birth, no more than the young of any other animal; and fœticide or infanticide might be expunged from the catalogue of crime. These philosophers forget that the first of the human species was perfectly formed and organized before the breath of life and soul were breathed into his nostrils; and it is manifest that life and soul were added to his organization. It, therefore, follows, that life and soul, and matter or brain, were different in the first man, and were not made up by the five external senses. I cannot agree with a recent phrenological physiologist, who maintains "to call the human mind positively a ray of the divinity—*Divinæ particula auræ ex* *ipso Deo decerptus*, ex universa mente *delibatus*, appears to me to be absolute nonsense." Neither can I assent to another absurd position, which denies the interposition of an omnipresent Deity at the time of generation, as if the divine power was not in constant operation in every atom of the universe. Who knows how life is communicated, or what becomes of it, when the body is deprived of it? "That life, or the assemblage of the functions, is immediately dependant on organization, appears to me, physiologically speaking, as clear as that the presence of the sun above the horizon causes the light of the day. Mind is the functional power of the living brain. As I cannot conceive *life* any more than the power of attraction, unless possessed by matter, so I cannot conceive *mind* unless possessed by a brain, or by some nervous organ, whatever name we may choose to give it, endowed with life. I speak of terrestrial or animal mind; with angelic and divine nature we have nothing to do, and of them we know, in the same respects, nothing." I ask, was life and mind distinct from organization in the first of the human species? Is the life and soul of the Deity connected with organization? Nevertheless the terrestrial mind, which we presume differs from the angelic or celestial, is material; and thus the human mind is a compound of terrestrial and celestial, it is material and immaterial according to the doctrine of Dr. Elliotson. Such is the illogical and unphilosophical conclusion of some materialists and phrenologists.* The pseudo-science of phrenology or materialism, has led to the too prevalent opinion of the materiality of the mind in this age, though some of the disciples of the newly-revived and fantastic hypothesis of moral philosophy stoutly deny it. There are some phrenologists who disavow materialism: there are more who avow it. I agree with those who consider phrenology and materialism synonymous; and as I hold both one and the other to be totally unworthy of belief, which is the opinion of the greatest physiologists in existence, in this and every other country, I shall repeat my denunciation of this false philosophy as published in the former edition of this work, and advise certain commentators not again to misquote and misrepresent my language, as on a former occasion.

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* See Mr. Roberton's Strictures on Dr. Elliotson's Physiology.—*Medical Gazette, November*, 1835.

The cultivators of medicine have been generally, and most unjustly accused of favouring infidelity and a contempt of religion; though of late it must be acknowledged, with pain, that an abortive attempt had been made which has given too much proof of the justness of the accusation;—this was the revival of materialism. The attempt, however, was as impotent as it was wicked—it was attacking youth on the weak side; and it was extinguished by the universal voice of the most eminent members of the faculty; for it was observed to have unhinged all the bonds of society in a neighbouring nation, and to have produced a degree of anarchy, confusion, and atrocity unequalled in the annals of mankind. It contained not a single argument that had not been urged and refuted a thousand times before; and after all the schemes of a reluctant and erring philosophy, the indispensable resort must be to a Deity and his ordinances. How appropriate the following distich to such philosophers:

> Know thou thyself, presume not God to scan,
> The proper study of mankind is *man*.

The doctrine is repudiated by the medical profession throughout the civilized world; and out of the whole, amounting to many thousands, there are not ten men of any eminence, either phrenologists or materialists. That philosophy which assails the attributes of the Supreme Being is fallacious: that wild hypothesis which is in direct opposition to the principles of revealed religion can have few, if any disciples, in an age so enlightened as the present. The really learned in the medical profession, have never been infected by the poison of infidelity.

The doctrine of the materiality and mortality of the soul, which is that of materialism and phrenology, "should for ever be exploded as totally false, and unworthy of all regard, as subversive of the fundamental principles of all religions, as introducing civil anarchy into the political economy of legislation, as substituting disorder for harmony, despair for hope, and eternal darkness for everlasting light."

If materialism tended to promote the happiness of society, to assist our hopes, to subdue our passions, to instruct man in the happy science of purifying the polluted recesses of a vitiated heart, to confirm him in his exalted notion of the dignity of his nature, and thereby to inspire him with sentiments averse to whatever may debase the excellence of his origin, the public and the medical profession would be deeply indebted to the phrenologists. But the tendency of phrenology, however disguised, is to make mind a secretion or function of the brain, and thus to deny the immortality of the soul. Unbelievers, in general, wish to conceal their sentiments; they have a decent respect for public opinion, are cautious of affronting the religion of their country, and fearful of undermining the foundations of civil society. Some few have been more daring, but less judicious; and have, without disguise, professed their unbelief and again retracted their opinions. In denying the immortality of the soul, they deny the authenticity of the Bible; they sap the foundations of all religions; they cut off at one blow the merit of our faith, the comfort of our hope, and the motives of our charity. In denying the immortality of the soul, they degrade human nature, and confound man with the vile and perishable insect, and overturn the whole systems of religion, whether natural or revealed. In denying religion, they deprive the poor of the only comfort which supports them under their distresses and afflictions, and wrest from the hands of the powerful and rich, the only bridle to their injustice and passions; and pluck from the hearts of the guilty the greatest check to their crimes—that remorse of conscience which can never be the result of a handful of organized matter—that interior monitor which makes us blush in the morning at the disorders of the foregoing night, and which erects in the breast of the tyrant a tribunal superior to his power. Such are the consequences naturally resulting from the principles laid down in some of the late phrenological writings. It is no intention of mine to fasten the odium of infidelity on any members of my profession; but it surprises me that men, whose understandings have been enlightened by the Christian revelation, and enlarged by the study of medicine (the most extensive and varied of all human sciences), should broach tenets which equally militate against the first principles of reason and the oracles of the Divinity; and which, if true, would be of no service to mankind. Of what benefit to humanity would be the establishment of phrenology or materialism? I answer none; but, on the contrary, the greatest injury. If any man be so unhappy as to work himself into the conviction that his soul is a function or a secretion of the brain, and of course must perish with it, he would still do well to conceal his horrid belief with more secrecy than the Druids concealed their mysteries. In doing otherwise, he only brings disgrace upon himself, for the notion of religion is so deeply impressed on our minds, that the bold champions, who would fain destroy it, are considered by the generality of mankind, and our profession, as public pests, spreading disorder and mortality wherever they appear; and in our feelings we discover the delusions of a cheating and unmedical philosophy, which can never introduce a religion more pure than that of the Christians', nor confer a more glorious privilege on man than that of an immortal soul. In a word, if it be a crime to entertain such a doctrine, it is consummate folly to boast of it. Whence this eagerness to propagate systems, the tendency whereof is to slacken the reins that curb the irregularity of our desires, and restrain the impetuosity of our passions? It must proceed from a corruption of the human heart, averse to restraint, or from the vanity of the mind, which glories in striking from the common path, and not thinking with the multitude. In vain are the phrenological materialists informed by the anatomist, that he can find bile in the liver, urine in the kidneys, but none of the faculties of the mind in the brain. In vain are they told that after death, when volition has ceased, the motions of the muscles can be excited by galvanism, and that though muscular motion be restored, we cannot recal volition, or the other mental faculties; rather a strong proof that motion and volition are not exactly the same thing. In vain have materialists examined dead bodies to explain the most important phenomena of life—their imagination only has answered; in vain have they mutilated the brain, in a hundred different ways, to discover the seat of the intellectual faculties—the vainest hypotheses are the result of their researches. What do they know about life, about the astonishing phenomena ascribed to sympathy, or the impenetrable mystery of generation? God reserves these secrets to himself. Facts are observed every instant in practice, which science does not explain; and it was this that made the father of medicine declare, there was something divine in diseases—that is to say, incomprehensible to man. These and ten thousand other proofs are lost on the phrenologists. They set up the proud idols of their own fancies in opposition to the received opinions of their profession, and in opposition to the oracles of the Divinity; and in endeavouring to display absurdities in the Christian religion, fall into much greater. To them we can, with due deference, and without disclaiming our title to good manners, apply the words of St. Paul to the philosophers of his time—"They became vain in their imaginations; professing themselves wise they became fools."

Let the patrons of the revived and long refuted philosophy persuade their wives that their souls die with their bodies —let them instil the same doctrine into the minds of their children — let the doctrine become generally received — unfaithful wives, unchaste daughters, rebellious sons, and general confusion and anarchy will be the blessed fruits of their philosophy. To those philosophers, the words of an able and learned prelate very forcibly apply—"The Bible has withstood the learning of Porphyry and the power of Julian, to say nothing of the manichean Faustus; it has resisted the genius of Bolingbroke and the wit of Voltaire, to say nothing of a numerous herd of inferior assailants; and it will not fall by your force. You have barbed anew the blunted arrows of former adversaries; you have feathered them with blasphemy and ridicule; dipped them into your deadliest poison, aimed them with your utmost skill; shot them against the shield of faith with your utmost vigour; but like the feeble javelin of the aged Priam, they will scarcely reach the mark, will fall to the ground without a stroke,"*

The doctrine of materialism is not more discordant with the principles of revealed religion, than with the opinions of the greatest men who have ever adorned the science of medicine; men who were, and still are, as great ornaments to the literary world in general, and medical literature in particular, as they are useful to mankind. On the other hand, the soul shrinks within itself at the horrors committed by materialists, as they pretended to disbelieve a future state of rewards and punishments, and assented to every evil suggestion of their unhappy minds.

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* Bishop Watson's Apology for the Bible.

"The first duty," says Napoleon, "of a medical man is to his God, the next to his king and country, and the next to his patients.*" This was the rule of duty of the greatest ornament of the medical profession, and comprises the whole institutes of professional conduct. The man who pays due homage to his Creator, and obeys the laws laid down for his guidance, must act honourably and justly towards his fellow-creatures. A religious man cultivates all the virtues that adorn the human character, and justly place man the lord of the creation. He will be distinguished for humanity, sympathy, politeness, a large share of good sense, and knowledge of the world. Dr. Gregory considered the chief of the moral qualities peculiarly required in the character of a physician was humanity, "that sensibility of the heart which makes us feel for the distresses of our fellow-creatures, and which of consequence, excites us in the most powerful manner to relieve them; sympathy produces an anxious attention to a thousand little circumstances that may tend to relieve the patient—an attention which money can never purchase; hence the inexpressible comfort of having a friend a physician. Sympathy naturally engages the affection and confidence of a patient, which, in many cases, is of the utmost consequence to his recovery. The patient feels the approach of a man who possesses it, like that of a guardian angel ministering to his relief, while the approach of a rough unfeeling man is like that of an executioner. A certain command of the temper and passions must be natural or acquired to medical men, as sudden emergencies frequently occur in practice, which may flutter the spirits and judgment of the best practitioner; and the weakness and bad behaviour of patients and their attendants are well calculated to ruffle the temper of the mildest individual, and cloud his judgment, and make him forget propriety and decency of behaviour; hence the necessity of presence of mind, composure, and steadiness." Let him be remarkable for the humane and liberal exercise of compassionate philosophy. Dr. Gregory has lucidly described the genius, understanding, temper, and qualifications, which are required for the duties and office of a physician, which will be inserted hereafter. He observes, "to excel in this profession requires a greater compass of learning than is necessary in any other." This assertion is borne out by the most exalted testimony. Judge Blackstone gave physicians pre-eminence for "general and extensive knowledge." Dr. Johnson was scarcely less favourable in his estimation. "Whether," he observes, "what Temple says be true, that physicians have had more learning than any other faculties, I will not stay to inquire; but I believe every man has found in physicians, great liberality and dignity of sentiment, very prompt effusions of beneficence, and willingness to exert a lucrative art where there was no hope of lucre."* The late Dr. Parr, the justly celebrated philologist, remarked, "while I allow that peculiar and important advantages arise from the appropriate studies of the three liberal professions, I must confess, that in erudition and science, and in habits of deep and comprehensive thinking, the pre-eminence, in some degree, must be assigned to physicians."† Rousseau spoke as follows of the faculty:—"Il n' y a pas d'etat qui exige plus d'etudes que leur: par tous les pays ces sont les gens les plus veritablement utiles et savans."‡ "In addition to all other means of augmenting your true fame," said Professor Godman, "the observance of one circumstance will be of great importance; this is the unremitted exercise of humanity towards those who seek your professional aid, whatever be their conditions. The character of a truly good physician, is one of surpassing excellence, and his reputation is the most exalted we can hope for. He is the friend of the wretched and woe-worn; the cheerer of the despondent; the solacer of the broken-hearted. His soul is the empire of benevolence; his actions the result of a principled charity, and unaffected good-will. He is the blessing conferred on the society in which he lives, and an honour to the human race. Wherever the afflicted dwell — wherever the voice of suffering is heard, he is to be found. The diseased find cheering and consolation from his presence, and the sounds of sorrow are stilled. Even when hopes of life can no longer be given, he calms the tumultuous grief of relatives, by recalling their thought to that better world, where sickness and sorrow are to be no more—'where the wicked cease from troubling, and the weary are at rest.'

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* O'Meara's Voice from St. Helena.

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* Lives of the Poets, Garth.

† Remarks on the Statement of Dr. Charles Coombe, pp. 82, 83.

‡ Letters.

"Such are the common offices, and frequent exercise, in which he is engaged. His character, even under ordinary circumstances, may be contemplated with gratifying emotions. But there are conditions in which he is presented in a more sublime aspect. It is when the lurid breath of pestilence scatters destruction, desolation, and dismay, throughout the land, and death tramples with indiscriminate fury over the people — when the ties of relationship and affection are sundered by the violence of fear, and utter selfishness seizes on the hearts of men; then the good physician, unmoved by such examples, untouched by terror, regardless of himself, is seen actively discharging every duty. Then he becomes the father, the brother, the friend of the destitute; his steadfast attention smooths the pillow of the dying; he inspires the desolate with hope; and, like a beneficent angel, wherever he goes, is a dispenser of good. Who can estimate the feelings, or measure the fame of such a man? Who would not imitate his example for such a reward? What is there in death's most frightful forms that could withhold us from attempting to deserve it? It is a glorious privilege which our profession confers, of inscribing our memories, not on perishable marble, but in the living affections of our fellow-men, to be cherished as long as our race shall endure."* It is unnecessary to illustrate this truism by other citations, as it is universally admitted by those capable of judging. As to the observance of ethics, it may be fairly stated, that there is much room for improvement in this section of the empire.

The following graphic and elegant description of the moral conduct of medical practitioners, is so accurate and so just, that I quote it with much pleasure. The author defended the study of anatomy before the passing of Mr. Warburton's Act, which legalized it.

"Nevertheless, anatomical pursuits are neither criminal in themselves, nor yet fraught with dishonour or disrespect to the dead; they outrage no feelings but such as are of a superstitious nature; neither do they in any way deteriorate or brutalize the character of those who pursue them. Insinuations of the latter kind are, indeed, frequently thrown out, but we repel them with meet and honest indignation. We appeal to observation for the truth of our statement, when we assert, that society does not present another class of individuals more numerous and respectable than that of the medical profession; and one, at the same time, against the general moral conduct of which so little reproach can be made. There is none, too, possessed of more varied and valuable information. In these respects physic has no occasion to shrink even from a comparison with divinity. With temptations infinitely stronger and more diversified, practitioners in medicine do in no wise cede to the clergy, taken generally, in the morality of their conduct. It ought moreover to be borne in mind, that the very vocation of the latter, by abstracting them from temptation, diminishes the merit attached to the rectitude of their walk. At the same time we need not hesitate to affirm, that more benevolent, more truly kind and charitable individuals, than those which have adorned the profession of physic can no where be found. No description of men, whatever their calling or station in life, render such valuable services to the poor and needy sick; none expose themselves to dangers equally numerous and great, without the remotest prospects of pecuniary remuneration. They work silently, yet not the less effectually. They make use of no ostentatious preconization of their good deeds, which are of unsolicited and spontaneous origin; and whilst others are idly preaching the duty of charity, they exemplify it in their daily converse with man. No one is better acquainted with the distresses of poverty and sickness than the physician; and no one, therefore, can more fully and deeply sympathize with the afflicted. What a bright galaxy of medical philanthropists does history exhibit to us! Of men who have conferred lasting and invaluable blessings on society; who have laboured through evil and through good report, for the benefit of their fellow-creatures! And do they not still labour in the same cause? Do they not pursue the same undeviating path of benevolence; gratuitously devoting their time and talents to the indigent sick? We will say nothing of what is privately wrought in this respect; let our public hospitals, our dispensaries, and asylums be consulted: let them speak. There are very few such institutions, in which those who have the care of the soul are not adequately remunerated for their trouble; whilst, universally, those who cure the body bestow their time and ability gratuitously. And yet, time is infinitely more precious to the latter than to the former.

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* Address delivered on Professional Reputation, before the Philadelphia Medical Society, 1826, by John D. Godman, M.D., Professor of Anatomy and Physiology in Rutger's Medical College.

"Again, no body of men in the community can boast of brighter ornaments to science than are to be found amongst the members of the profession of physic. Where shall we find more truly liberal and enlightened philosophers? Individuals, that have more effectually contributed to dissipate error and superstition, or more zealously promoted the general good of mankind? Where, in fine, shall we meet with men who have united higher cultivation of mind with a more truly virtuous nobility of character?

"We repeat, then, neither in mental nor moral attributes does the profession of physic yield to that of theology. Let no one imagine we are instituting an invidious comparison, with the intention of exalting the merits of one body in the community, by depreciating those of another. We have no aim but that of evincing the general worth, industry, and acquirements of medical practitioners. We wish to show, that the study of anatomy does not exert any baneful influence on their characters; that it does not deprive them of the distinguishing sensibilities of humanity, and thus render them callous to the sufferings of their fellow-men. No! they pursue an honourable and dignified vocation, and are urged on in their career by the noble ambition of achieving the utmost possible good. It would be difficult, indeed, to point out in society, individuals of a more laborious, persevering, and indefatigable character. At all hours, at the table of repast, on the couch of repose, amid the inclemency of weather, the harass of an anxious mind, and the oppression of bodily fatigue, they must be ready to obey each capricious call! And yet how ill-treated and ill-requited! Patients rigorously exact an assiduous attention; whilst with all *latitude* which may suit their *fancies*, they will *follow* the advice of a medical attendant, yet immediately suspect the extent of his skill, should the amelioration *demanded* not ensue. But this is not all; they even seek at the hands of the law to obtain compensation for any supposed deficiency of skill, to the attainment of which, nevertheless, both themselves and the law are equally opposed!"*

They cease to suit their own convenience and to attend to their private affairs, as they are always ready to wait on suffering humanity; they allow nothing whatever to prevent them from attending to the sick, they are always ready; they bear with the injustice, the caprices, and ingratitude of men; they expose their lives in the most dangerous circumstances—when pestilence devastates the earth, in all times, in all places; they possess courage, exemplary patience, and an entire abnegation of self. Such are the virtues of medical practitioners.

They are, however, *amply rewarded* for all annoyances and ill-treatment. They have numberless opportunities of giving that relief to distress which is not to be purchased with the wealth of India. This, to a benevolent mind, is one of the greatest pleasures. "Is there any thing in the world more estimable," asks Voltaire, "than a physician; who, having studied nature in his youth, knows the relations of the human body; the diseases that torment it, the remedies that may assuage it, exercises his art in defiance of it, takes equal care of the rich and the poor, who does not receive remuneration but with regret, and employs it to the succour of the indigent? Men," continues he, "who are occupied in affording health to other men, exercise the only principles of beneficence, are far above all the great ones of the earth, they partake of the divinity."

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* Dr. Corden Thompson's Letter on the Necessity of Anatomical Pursuits, 1830.

They are now duly appreciated by kings, nobles, poets, and literary and philosophical characters. All the virtues are displayed in the exercise of the functions of a physician—his ministry commands the respect of men, and the admiration of sages.

As there is no perfect code of ethics to guide the profession in this country, a succinct detail of the rules of conduct prescribed in the different works of authority may be given, and then the leading points can be fully discussed under separate heads. The following is an imperfect epitome of the ethics of the last century, collected from various sources. To this will be appended the ethical code of the present period.

CHAPTER III.

MEDICAL ETHICS OF THE MIDDLE AGES.

First of all things, a medical man ought to exercise piety, and give due honour to the Supreme Being. Next, he ought to render to every one his due; obedience to his superiors, concord to his equals, and equity to his inferiors. He ought to preserve a clean heart, and silent tongue, and cultivate every virtue. The whole praise of virtue consists in action. He is to avoid anger, and suppress all its perturbations, intemperance and insolence, having always before his eyes the great deformity of mind produced in those who give way to them, and the amiableness and gracefulness of those who avoid them. Sensuality, intemperance, and dissipation, produce concupiscence and carnal gratification, which increase rapidly, and would eventually ruin a medical practitioner. These are to be strenuously avoided, as well as every luxury. Continence consists in moderating pleasure; gluttony, debauchery, and ignominy, in abusing it. An incontinent, or an intemperate man never rose to eminence, and is completely unfit for medical practice. Men of loose and dissolute habits, and of excursive amours, debase themselves to the rank of the brute creation, and render the mind stupid and inert, and totally unfit for the pursuits of science. Such profligate and abandoned characters cannot be found in the history of the medical profession—in truth, men so vitiated could not long pursue the practice of medicine. What man would commit the care of his wife, daughters, or female relatives to a medical practitioner, if such could be found, of so debased and brutal character—to a man burning with desire of violating the conjugal and vestal honours of his neighbour's family. Hence the necessity of practising chastely and honourably; and hence the preference which is given to those members of the profession who have entered into the sacred bonds of matrimony, especially in obstetric practice. Every one is bound to support his own and the professional dignity, with noble sentiments, probity, and humanity. Sadness and fear depress the mind and body, and unman the practitioner. Fortitude is opposed to sadness and fear, and is often necessary to enable us to bear patiently the calumny and contumely, to which no class of men are more exposed than the professors of medicine. All these passions should be expunged from the medical character, and an ardent desire of fame and glory be substituted in their place. Avarice, pride, and envy, are evils which must be carefully avoided. Avarice was considered the chief of all improbity by the ancients; and it is highly cruel in medical men, when it precludes aid from the sick. But those do not consider its cruelty whose sole object is the accumulation of riches. Well might the poet exclaim—

——Quid non mortalia pectora cogis
Auri sacra fames?

The sick should never want aid on account of pecuniary consideration; and the practitioner ought to be satisfied according to the affluence of the patient. Above all things, pride is to be avoided. It is odious in the sight of God and man, as it excites an inordinate desire of excellence, and induces one to think, that he enjoys from himself all the gifts of nature, talent, intellect, memory, power, and science, which are bestowed on him by the Deity: he despises others, and thinks they are to submit to him, although his superiors; and hence follows his insatiable desire of praise, fame, honour, glory, and reverence, which is but vain glory. Physicians ought never to be guilty of such an error, nor of presumption, ambition, nor curiosity. On the contrary, let them display humility without sordidness. Envy at the prosperity or success of another, is an evil which ought not to be named among the profession. An envious man is pusillanimous, of a narrow mind and abject talent, for he shows by envying others, that he is inferior to them; he envies what he does not possess, but vehemently desires. Envy is a compound of hatred, dissimulation, avarice, pusillanimity, mendacity, and ambition; and is opposed to friendship, liberality, truth, magnanimity, and prudence. Medical men must avoid this most pernicious evil. All ought to enjoy fortune happily, and no man should be sad at the prosperity of another. Having thus pointed out some of the vices which are to be avoided by medical men, it is right to enumerate the virtues which they ought to cultivate. These are prudence, circumspection, foresight, caution, perspicacity, continence, sobriety, mildness, modesty, taciturnity, veracity, gravity, magnanimity, liberality, and honesty—friendship towards acquaintances, affability and civility to strangers, and decorum according to age, sex, and condition. The contrary vices are imprudence, stupidity, precipitation, enmity, cunning, curiosity, and all the excesses of the will and desire, as irascibility, concupiscence, which are to be avoided by medical practitioners as the most mortal pestilence. About which let them consult the writers on morality, especially Plato, Aristotle, Plutarch, and Seneca; and above all, let them peruse the Sacred Volume, which will lead to virtue and prudence, from which they will learn how to be good men and prudent practitioners, and to think piously. The conversation is to be moderate and veracious; the morals must be grave, benign, and cheerful; the diet temperate and frugal; the apparel respectable and professional; witticisms to be free but few, and to these may be added the ancient precept—

Mens humilis, studium quærendi, vita quieta,
Scrutinium tacitum, paupertas, terra aliena.

A medical man should be affable and hospitable; friendly to his relations and neighbours: polite to all without any moroseness; he is to relieve the sadness of the suffering patient with placid and mild discourse. Let him not be peevish, but ingenuous, affable, familiar, and enforce his authority without any disdainful gesture. Let nothing fictitious, nothing simulated be in him, nothing low or base, but let his mind soar with sublimity above all the vicissitudes of fortune. Let the studies of his life be the meditation on the delight and riches of science, virtue, and honour. Let him shun litigation and vain popular applause: he ought candidly to praise the good, always avoid detraction, tolerate the bad, indulge the inferior, agree with his equals, and obey his superiors; he is to injure no one; he is to live in the greatest harmony with his family, for this tends to support dignity, and a good reputation; he is to live on the best terms with all, and endeavour to obtain universal esteem. Let him maintain his opinions with modesty and eloquence, and always with veracity, but without obstinacy. He is not to be proud or haughty, but cure rich and poor, slaves and free, of whatever nation, for medicine is the same to all. He must be careful to observe, that his remedies and directions shall be faithfully exhibited and attended to. *He is to esteem as hidden mysteries whatever is said or done in the house of his patient*, and thus he and his art will acquire more praise. By the observance of these institutes a medical practitioner will obtain a distinguished place among the wise and good.

The display of a diploma is to be left to jugglers.* The greatest cleanliness is necessary; and particular attention to the hand and fingers is requisite. In visiting the sick, let the countenance be meditative, not melancholy or peevish, which is odious to all. Risibility and hilarity are deemed intolerable, from whence the axiom, "medicus garrulus ægrotanti alter morbus." His whole gesture is not to be so humble as to excite contempt, nor so proud and arrogant as to excite hatred for him. No perfumery is to be used, but if there be any unpleasant odour in the breath, it is to be corrected, lest the patient have reason to exclaim, "cure thyself." The visits to the sick should not be too frequent or too rare, twice a day, except in extreme cases, is quite sufficient. Dr. Gregory maintains an opposite opinion, but reason and common sense are against him. Frequent visits are deemed troublesome by some, while they are esteemed angelic visitations by others. They are to be regulated according to the wish of the patient, or danger of his disease. By gravity and affability we can best learn the nature of disease.

In visiting the sick we should recollect a proper approach, authority, silence, and answers to all inquiries, promptitude in prescribing, that nothing be done precipitately. It is proper to enter the chamber calmly, and not boisterously, not with petulance, noise, garrulity, nor an elevated voice, so that in approach, aspect, or any other manner, there can be nothing indecorous. In conversation with the sick, our questions must be grave, plain, and intelligible, without solecisms, pedantry, harshness, not foolishly advising them to be of good hope; neither are we to condemn the former errors of life too severely, which might lead the patient to suppose his case hopeless. The sick are generally pusillanimous and suspicious; and many medical men are so imprudent and loquacious, that they express their opinion openly, rendering the patients melancholy and timorous, who fear that which is related is their own condition. We should be extremely cautious in our expressions, and duly consider what is proper to be said to the sick and the attendants; and enforce with mildness and confidence the necessity of obeying all directions and injunctions, and of faithfully administering the remedies prescribed. In this way the sick can never be alarmed, and we have the best chance of success from the due exhibition of medicines. Some men are harsh and overbearing to the sick, and others too accommodating and flattering; both err exceedingly. Humanity, moderation, and suavity are indispensable, because, unless the patient looks on his physician almost in the light of a deity, he will never obey his precepts. Let him therefore be careful of his appearance, voice, manners, and actions, if he wish compliance with his precepts. These requisites captivate society in every rank and condition.

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* It is a common custom in England to frame and glaze diplomas.

On entering the patient's chamber, a medical man is recommended to fix his eyes on the floor, or prudently on the countenance of the sufferer, to salute the attendants and patient politely; and then he is patiently to inquire of all, the age, temperament, habit, constitution, symptoms, and causes of the present illness; and he is also to recollect the season and state of the weather. All these things were comprehended in a single distich by the ancients—

Ars, ætas, forma, complexio, virtus,
Mos et symptoma, repletio, tempus et usus.

After he shall have patiently heard the complaints and narration of the patient, and however tedious, of the attendants, he should consider the state of the apartment, the ventilation, warmth, moisture, and so on. He is next to learn the order of symptoms, and examine the state of the cerebral, respiratory, circulatory, and assimilatory functions. The countenance, tongue, respiration, and pulse, are to be examined; the condition of the bowels and urinary secretion ascertained; and the state of the uterine evacuation in women. He is to inspect all the egesta, expectoration, alvine, uterine, and urinary discharges. If these things be well observed, you will explain the feelings and state of the patient better than he can do himself; and, therefore, he will admire and proclaim your skill and excellence, and will repose more confidence in your opinion. The confidence of the patient is often a more certain cure, than can be accomplished by the practitioner and his medicines. In prognosticating the event to attendants and friends of the sick, we must duly consider his former and present condition; and only predict those things which we know must eventually happen. Thus, they will perceive, that you are not the cause of death, should it occur, but of health, should it be restored. It is from prognosis the world extols a physician, and celebrates his name with utility and honour.

In prescribing remedies, it is necessary to inquire the form which the patient prefers. In this, as in all other desires which are not injurious, he is to be gratified; and all medicines are to be made as palatable as possible. In some cases, the parents must persuade the child, and the child the parents, or one friend another, to take certain remedies. There is no objection to this, on the contrary, we must avail ourselves of it as an auxiliary, or life may be sacrificed. In many diseases the sick must be kept tranquil, and all visitors excluded. In this injunction we must be peremptory, and no one can be so unreasonable as to require admittance, at the risk of destroying the life of the patient. Some patients are exceedingly sad and melancholy, and these must be preserved from the visits of all who would further afflict them. The intemperate zeal of the clergy, and even when there is no necessity for their interference, is often fatal to the patient. Every remedy sanctioned by the major part of the faculty ought to be faithfully employed. Too much physic is highly injurious to the constitution; and disease can often be cured as well without, as with medicines. Those whom nature cures, are injured by medicines. Administer nothing timorously or rashly, and never change medicine without having given it a fair trial. A man who is constantly changing his remedies will not possess the confidence of his patient, because he affords strong evidence that he is ignorant of the means of cure.

Cleanliness, ventilation, and regulation of temperature in the sick chamber, are as valuable as medicines. Should the disease be incurable, and prove fatal, the medical attendant may pay a visit of condolence to the relatives, which is always looked on as a proof of his sincerity and friendship. In some cases he may opportunely mention patients whom he had cured of a disease similar to that under treatment; if these were the friends or acquaintances of the sufferer, so much the better; he serves the sick by inspiring confidence, and also increases his own reputation. If spoken to about compensation for his attendance, he should declare that the recovery of the patient was his chief concern; but in many cases he must stipulate for his fees, or he will be cheated. This may be done through the friends and attendants, but not with the patient when dangerously ill, unless required by himself. A medical man should be affable to all, but not too familiar with any, especially with the illiterate; and his conversation should be always dignified and reserved.

A physician should be always ambiguous in his prognosis, unless the most certain and infallible indications of health, or death be manifest. "Ambigue futura pande," says Macoppe, "predict the future ambiguously." The sick, their relations, domestics, and neighbours, are too desirous of knowing the result of disease. They wish us to be oracles and demi-gods instead of men. He who expects inheritance or title; he who loves a father, mother, wife, child, friend, or acquaintance; and he who hates an enemy, are all anxious to learn our opinion on the issue of disease. It is extremely difficult to form an accurate prognosis; and in a vast majority of cases it must be doubtful. Professional fame is often injured by a prognosis. When it is doubtful, if the patient perishes, it is the fault of the disease and not of the practitioner; if he recovers, a new Esculapius is lauded to the skies. If, on the contrary, the patient dies after his recovery had been predicted, the medical attendant will be censured, and it will be said, he mistook the nature of the disease and caused death. He is to be moderate in his promises, and always rather pronounce a hope of recovery, than certain death. If a patient is deserted, and afterwards recovers by nature or chance, which often happens, the practitioner will incur much blame. But if he had afforded a hope of health, and death occurs, the ignominy is not so great, because many errors and excesses may take place, or even a new disease; and the commutation is much easier from health to death, than from death to health, which, in the course of nature, is almost impossible. A medical man should not interfere in recommending the patient to make a will, it is the strongest proof of despair, and a matter with which he has no concern. When he sees it necessary, he ought to apprize the friends or attendants, and let them advise the patient to arrange his affairs, in order to prevent disputes and litigation among his heirs. Even this requires great caution, for most probably other aid will be had, and should the patient ultimately recover, it will be to the injury of the first attendant. The friends, relatives, or clergy, are the most proper persons to advise the patient to arrange his affairs; but if the medical attendant be present, he, with a composed countenance, mixed with sincere hope, is to console the patient, and tell him, that the making of a will cannot affect his recovery, for many have done so, who have recovered and lived for many years, or are now in existence. When the patient is labouring under a disease that may speedily suspend the mental faculties, or endanger life, it is right to apprize his relatives or attendants, and advise them to propose sending for a clergyman, to afford the consolations of religion. In Catholic countries the law is, that the medical attendants should recommend a clergyman at the fourth visit, when the disease is acute. I feel convinced, that I have known some individuals whose lives were destroyed by the premature recommendation to see a clergyman;

and others who shared a similar fate when advised to settle their affairs by making their last will and testament. Others have fallen victims in consequence of the indiscreet zeal of the clergyman, more especially when he professes, as is sometimes the case, without any real pretension, a knowledge of medicine. Again, a decided opinion delivered by a medical practitioner, in whom great confidence is placed, may turn the balance in favour of life or death. The greatest caution is therefore necessary in forming a prognosis. Health or recovery ought never to be promised, lest it offend the Deity, who alone can decide the fate of the patient: if the healthy and robust are uncertain of to-morrow, how much more are the diseased and infirm. In making promises, many natural and auxiliary causes are to be considered, the compliance and obedience of the sick, the diligent application of remedies, and the sudden and unaccountable changes of diseases. We may state, there is or is not danger at present, that there are many changes in diseases, and that the case is in the hands of Divine Providence. Lastly; that every thing which art affords shall be carefully tried. How powerful the first aphorism of Hippocrates, "judicium difficile;" and also that of Macoppe, "ambigue futura pande."

Plato, Hippocrates, and Galen, maintained, that "medical men were justified in deceiving the sick for the cause of health." They held statesmen and physicians excusable for this breach of ethics, but no other class of society. The Christian religion, however, is opposed to mendacity in any circumstance. To the physician deception is however almost necessary, because his patients are often timid, suspicious, and observant of his words and aspect, and drawing unfavourable conclusions from his very appearance. David, in order to escape from king Lachish, changed his dress, and simulated insanity. It is a fact, that a tone, a word, a look, will destroy life in delicate and dangerous cases. How often must we disguise medicine, in order to conquer the aversion and idiosyncrasy of the sick. But mendacity is an evil by which we misrepresent the order of the Creator and of nature. We express not that which we think. We are not to do evil, that good may follow. Nevertheless, Abraham said he was his wife's brother; Jacob said to his father, he was Esau, his eldest son; and the midwives of Egypt said they could not kill the Hebrew infants, a murderous injunction, for the breach of which they were justly commended. Official mendacity is less pernicious than that which is malicious. We must never promise recovery, without premising that it depends on the Divine will, on the due performance of all medical precepts, both by the patient and the ordinary attendants; and even then we must pronounce our prognosis with the greatest caution. The learned physician will bear in mind the great influence of change of weather on the human body; and the many changes a disease of the most favourable aspect may undergo. Presumption must be avoided. The presumptuous practitioner knows every thing, has read all works, and seen all diseases; the most difficult cases do not alarm him, the most delicate operations are undertaken by him with alacrity; in fact, nothing embarrasses him. He speaks of himself in flattering terms, he knows more of the profession than the whole body, he can cure consumption, cancer, hydrophobia; the first aphorism of Hippocrates does not apply to him; in fine, he believes he possesses the genius and power of Esculapius. Such is the presumptuous practitioner, though he is, in truth, very superficially informed, and generally an ignorant individual. He is an imitator of the uneducated and daring empiric, who professes to cure every one, and proclaims "all diseases incurable to the faculty cured here." No well-informed practitioner can be accused of such ridiculous vanity; he duly appreciates the difficulties and dangers in practice, the mutations and incurability of many diseases, and he is cautious in his prognosis.

Timidity, on the contrary, is a bad feature in the character of a medical practitioner. Some are frightened at every case that comes under their care, they have not courage to employ active or powerful remedies, they do not kill their patients, but allow them to die. They accuse medicine of the unfavourable issue, and not their own ignorance and culpable neglect, in not applying proper means of treatment.

There are others who may be considered fanatics in medicine, the partizans of this or that doctrine. In vain have new discoveries changed the face of science, they are and remain incredulous. Such are the disciples of Abernethy, of Broussais, and of Hanhemann. They forget that diseases are as numerous as the sands of the ocean; that they depend upon a variety of morbid changes, and that they are successfully treated by the most opposite remedies. Thus the inflammations and fevers are cured by antiphlogistic measures, and sometimes by powerful stimulants; while the painful, spasmodic and nervous affections are best relieved by sedatives, tonics, and improvement of the general health.

A few words may be said on the duties of the sick, and their ordinary attendants during the cure of disease.

Hippocrates laid down, in his first aphorism, that the physician should not only excel in the due exercise of the best of his skill, but also direct his attention to the conduct of the patient and his attendants, as well as to all extraneous affairs. He said, the medical art consisted in three things, in disease, in the sick, and in the physician, the minister of nature and art. We cannot cure disease, unless the patient assists us. If he refuses remedies, the disease must in general remain, or prove fatal. Hence, the mortality of violent maniacal patients. The assistants are the minor order of medical men and domestics; and the physician must be acquainted with all their duties. Thus, Galen was of opinion, that he must be conversant with pharmacy, venesection, obstetricy, culinary affairs, and even menial servitude. Thus qualified, he can discover artifice, amend, and avoid it. The ordinary attendants should be chosen from those who are acquainted with the patient, and are most likely to pay implicit obedience to the medical directions, and who are accustomed to wait on the sick. They are to report all the symptoms at each visit, and preserve the apartment in the best order. They are to amuse the sick with cheerful conversation, and never indulge in frightful or ominous narrations; they are to preserve all the egesta, sputa, alvine, and urinary discharges, and whatever is rejected from the stomach, or is passed by hæmorrhage. Of all things they must avoid quackery, and never administer either diet or medicine, unless that which has been prescribed. They must not indulge in the use of ardent or inebriating liquors; they must avoid informing the patient of any thing that may distress him; they must not exhibit any of their own food or drink to the sick; and, in order to compel them to comply with their duties, a faithful servant ought to be placed as a watch over them. They should not divulge any thing they may see or hear, but adopt the old adage—"Hear and see, and say nothing." Let the young physician duly consider, how much the event of the disease depends on the proper performance of the duties of nurses; and he will be very cautious in his prognosis.

This precept is to be chiefly observed by a medical man, never to visit a patient unless requested to do so. Should he volunteer his services, he renders himself liable to be suspected of ambition or of avarice. When one goes unsolicited, he may be certain he will not have the confidence of the sick, and will be deemed indigent or necessitous; and he cannot expect any reward for his spontaneous visitation. If known to the sick, he will be despised for his intrusion; if unknown, his conduct will be suspected. A visit unsolicited is not only useless and indecent, but suspicious. Another medical practitioner may be already in attendance, and will view any intrusion as highly unprofessional. The only exception to this conduct, is when we visit a friend; but even then we are to come as friends, and not in a professional capacity. Again, a patient might be alarmed at seeing a strange practitioner, having one in whom he reposes all confidence already in attendance. It is also derogatory to the dignity of the profession to be called in, through the recommendation or persuasion of nurses and others. Attendance even on friends must not be given, unless regularly requested. It is also improper to visit a patient at the request of a relative, unless the person affected, if rational, concurs in the request.

There are some avaricious and eccentric men who refuse medical aid, because it is expensive, but their friends solicit attendance in the usual way. It may be given, provided due compensation be made to the practitioner, but not otherwise. It is monstrously improper for eminent professional men to give advice gratuitously to the affluent at hospitals; it is a direct injury to the rising members of the profession.

If a relation or contemporary who has quarrelled with a medical man be ill, ought we to visit him? Most certainly, even if he has called in another. A good and generous man will conquer evil with good, not considering the deserts of the patient, but what is right and meet for himself, and to promote the honour and glory of the Deity.

A patient is to be visited once a day in chronic cases, twice in acute, and oftener in the most acute. After a lapse of forty days, two visits in the week may be sufficient; but in all cases they must be regulated by the patient or his friends. In acute and dangerous cases the friends are to be informed of the perilous condition of the sufferer, and should they not speak of the next visit, they are to be apprized of its necessity, however painful to the practitioner. After convalescence attendance may be occasionally given, and a gratuity is not to be refused; but must not be accepted, if the patient declare his restoration to health. In such cases some complimentary visits ought to be made. Medical aid is to be afforded to every human being, friend or foe, native or stranger. A physician should not undertake the cure of himself, his wife, or his children in dangerous diseases, as his mind and reason will be perturbed, and unfit him for the arduous and difficult treatment of violent cases. A lawyer who pleads his own cause is said "to have a fool for his client."

Some men suppose if they once pay a physician he is to attend them through a succession of diseases; but who will be imposed on in this manner? Others who pretend friendship, will not call a practitioner, but should he visit them, will enjoy his labour without recompence. This is very often the conduct of relations, and of many towards young practitioners; in such cases attendance ought to be withheld, unless in the regular manner. What other class of society will act without reward? Will the clergy, or lawyers, or military, or kings, or any other class of society act so generously? Surely the labourer is worthy of his wages.

A patient is not to be deserted in the most hopeless condition, for recovery may still happen. Let the practitioner ever recollect the adage, "dum anima est, spes est," while there is life, there is hope. With respect to consultations, those who form them should be regularly qualified, and only look forward to the welfare of the patient, and in preference to fame and lucre. The sick have a right to select those they please. No medical practitioner is justified in refusing to meet another in consultation, if both be duly educated and legally qualified, whether in the same university or another. The patient is not to suffer by their disputes, with which he can have little or no concern; the great object of a consultation is the cure or relief of the patient, and not disputation. Consultations are highly necessary in dangerous cases; and no man should ever object to them. A remedy may occur to one, which has escaped the recollection of another, "Et quod tu nescis fortassis novit Ofellus." The physician called in should be older and more eminent in the art than the former attendant. It is the duty of the attendant to communicate the history and treatment of the case, that both may consult what may be added to the cure. If a new remedy be proposed, it is to be tried if either of the attendants would use it himself, if afflicted in a similar manner to the patient. A few words may be said on the manner in which a medical man ought to behave on receiving compensation.

It is unnecessary to enumerate the arguments in proof of the justice of rewarding medical practitioners for their labours. An art that is not purchased, is disesteemed, therefore the correctness of the axiom,

"Exige dum dolor est, nam postquam pœna recessit,
Audebit sanus dicere, multa dedi."

And of another,

"Accipe, dum dolet."

What will not a man give, to one, who liberates him from the greatest danger? Or is there any one so insane, as to spare his riches, when life is in danger? All that a man possesses, says Job, he will give for his life. Thus Philip, the father of Alexander, said to his physician, after he had reduced his dislocated clavicle, "Accipe omnia quæ voles, quando quidem clavem habes." Many similar examples might be quoted; for,

> "Medicis in morbis totus promittitur orbis,
> Mox fugit a mente medicus, morbo recedente."

A physician was said to possess three casts of countenance. When he converses with the healthy, he displays his ordinary one; when he approaches the sick, labouring under acute and painful disease, he is said to display his angelic one; and when he visits his patient after cure, and seeks compensation, then his aspect is satanic,

> "Dum præmia poscit medicus, Satan est."

As health is above all temporal blessings, no one can give an adequate reward for its recovery. Nor has a medical man ever received sufficient compensation, for the labours and troubles which he experiences for the calamities and miseries of others, which he makes his own. What can compensate him for the continued anxiety, inconvenience, loss of rest, deprivation of ordinary pleasures and comforts, which he always experiences? The members of the church and law have time for recreation and amusement; they are not always employed, but the medical man must be ever at his post, his motto is "semper paratus;" and it was for this reason, Dr. Johnson defined the duties of a medical man thus, "a truly melancholy attendance on misery, a mean submission to peevishness, and a continual interruption to rest and pleasure."* Soranus said, "if rewards be given, let them be accepted and not refused; if they be not given, let them not be required; because however much any one can give, is inadequate value for the benefits conferred by medicine." The remuneration of medical practitioners ought to be regulated according to custom and to the rules of the profession. It ought, however, to be proportionate to the circumstances or pecuniary means of the sick, and to the standing and eminence of the practitioner. The fee of a guinea a visit is much too high for a preponderating majority of society in most countries, and it has led even the most eminent physicians and surgeons in London, to pay two visits to those in the middle ranks in life for one *honorarium* or fee. It is unreasonable to expect, that a junior will be remunerated on the same scale as a senior; nor is this done in the church, at the bar, nor in the army or navy. The custom in France, Germany, Italy, and most foreign countries, of regulating fees according to the standing of the practitioner and means of the sick, is, in my opinion, much wiser and more beneficial to the junior members of the profession, than our system of guinea fees. In the countries now mentioned, the fee of a junior practitioner, a doctor in medicine and surgery, is, at first, about a shilling a visit; but, as practice increases, the fee is gradually raised to a sum equal to a guinea. The system of fees in this country has originated general practitioners, or surgeon-apothecaries, who generally receive no fee, but are remunerated by their medicines. This system was declared to be objectionable, by the heads of that body before Mr. Warburton's Parliamentary Committee, 1834, and all were in favour of small fees, which will most probably be enforced by law. Many eminent physicians and surgeons in this metropolis are in the habit of visiting a patient in the middle ranks of life, as often as three times for one fee; and they also cheerfully receive half a sovereign for a consultation at their own habitations. This being a fact, what chance has a junior physician or surgeon of competing with them in practice, if even he was satisfied with the same remuneration? For these and many other reasons, it is expedient and necessary to regulate and proportion the fees of medical practitioners, so as to protect the junior members and surgeon-apothecaries. This subject will come under full consideration in the section following the chapter on education, and in that relating to the laws of the medical profession.

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* Thus the axiom, Medicè vivere est miserè vivere.

It is contrary to medical morals to bargain for a certain fee before a cure is effected. This is the system of empirics who make a contract, "no cure no pay." But physicians and surgeons in extensive practice, will not go several miles distant, or perform capital operations, without specifying the exact remuneration they require. They do not act in the above manner, nor violate the ethical rule—"de mercede ne pasciscaris. Hoc impostoribus et circulatoribus relinque."

Many presents are given to medical practitioners in addition to fees, and sometimes a large amount of property both in money and estates. Others bestow books, carriages, &c. In former times, it was considered derogatory to the profession to accept gifts of this kind in place of fees. Many instances of ample and magnificent fees and gifts to medical practitioners in past and modern times might be quoted.

A question has been discussed in all ages, namely, whether a medical practitioner ought to be punished for bad practice? The most eminent philosophers and legislators of old, were unanimously of opinion, that the errors of a medical man, if involuntary, should be forgiven. The father of medicine maintained, the only punishment should be his own ignominy. Plato de Republica says, "quivis medicus, si is, qui ab eo curatur, moritur, invito ipso purus sit secundum legem." This opinion obtains in some civilized countries.* Pliny, lib. 29. is of the same opinion—"Nulla lex est, quæ puniat inscitiam capitalem medicorum, nullum exemplum vindictæ, discunt. periculis nostris, et experimenta per mortes agunt, medicoque tantum hominem occidisse summa impunitas est, quando in hac artium sola eveniat, ut unicuique medicum se profitenti statim credatur." Barbarians held an opposite opinion, and punished medical men with death, if they had failed in curing the sick. Manes promised to cure the son of the king of Persia, and having failed, he was ordered to be flayed, which sentence was executed. Zerbus having failed to cure Bassa, the emperor of the Turks, was instantly sabred by the soldiers. The experienced and talented Avenzoar, was thrown into chains for a similar failure.† But I must proceed to consider the other duties of medical practitioners.

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* Not in Great Britain and Ireland, a civil, and even a criminal action, may be instituted for *mala praxis*, if death ensues.

† This horrible and barbarous law is still in force in Turkey.

CHAPTER IV.

ETHICS OF THE PRESENT AGE.

"I will never set politics against ethics, for true ethics are but as a handmaid to divinity and religion."—Bacon.

It is not easy to conceive the reason why the cultivation of ethics, a matter of primary importance to the success of medical practitioners, in the commencement of their career, should be almost totally neglected in the medical schools of an age so enlightened as the present. The fact is so, however incomprehensible it may appear. It is now the custom to initiate men into the mysteries of medicine, without the slightest allusion to the duties they owe each other or the public; or to the difficulties to be encountered on the commencement of their practice. Hence arise the frequent misunderstandings, disputes, and improper behaviour between medical practitioners, which are so disreputable and injurious to the dignity and interests of science. From some cause which remains to be explained, the majority of medical professors have excluded the discussion of ethics from their instructions; the faculties of physic and surgery have acted in like manner, so that there is no code of ethical institutes to be referred to, in the daily violations of those high moral principles, which have always characterized the true cultivators of medicine. The moral statutes and obligations which are required by some of our colleges, are so few, and so little known, that they are nearly useless; they are seldom observed, obeyed, or enforced. Indeed, the only works we have on the subject are those of Dr. John Gregory and Dr. Percival; but these are not deemed authority, nor are they perused by medical students. The former was published above half a century since; the latter previous to the changes made in the constitution of the profession by recent legislation—and both unsuited to the state of the profession at the present time.

There is, therefore, a fair field for further observations upon the subject.

In the subsequent remarks it will be necessary to describe the present state of the profession, and necessarily comprehend the condition of every class of practitioners. To execute this task in a satisfactory manner to all parties, is not to be contemplated, as the conduct of all richly deserves animadversion and censure. Truth, justice, impartiality, and an ardent desire to promote the dignity of my profession, shall guide me in the execution of my subject; and I am confident that I cannot be accused of partiality towards any denomination of the profession. My motto is, "amicus Socrates, amicus Plato, sed magis amica veritas." It is an old adage, that "it is impossible to please all parties;" neither shall I attempt it, nor endeavour to please one party more than another. Here I follow the steps of Dr. Gregory, who fearlessly avowed his determination to expose abuses, whatever might be the animadversions of his contemporaries. "Whatever opposition," says the editor of the Duties of a Physician, in 1770, "this part of the work may meet with, from those who find their own foibles, or rather vices, censured with a just severity, the ingenuous part of mankind, however, will not fail in bestowing that degree of applause so justly due to its merit. At present, there seems to be a general disposition in mankind to expose to their deserved contempt *those quackish, low, and illiberal artifices*, which have too long disgraced the profession of medicine. It is therefore hoped, that the general spirit will have a remarkable tendency to promote this laudable end; and that it will excite men of influence and of abilities to exert themselves in crushing that arrogance which has frequently served to cover the ignorance of many practitioners of medicine, by means of which alone they acquire such a share of practice as they are by no means entitled to." The same defects and abuses on which Dr. Gregory animadverted still remain uncorrected, and consequently are deserving of further exposure; in fact, they are too glaring to be defended, except by those whose personal interests render them insensible to the important advantages of reformation and improvement. A faithful picture of modern medical ethics is certainly much wanted; a comparison of what the profession is and was, may be entertaining and instructive to a large majority of my readers.

The only works on medical ethics which can be cited, are those of Drs. Gregory and Percival; and to these will be added the oaths required by one or two of our colleges, and the moral statutes sanctioned by them. These must be laid under free contribution. The first entitled, "Lectures on the Duties and Qualifications of a Physician," has justly received the universal approbation of the profession for more than half a century; and is an excellent abridgement of the maxims of preceding writers, and on many occasions their language is quoted *ipsissimis verbis*. In proof of this assertion, it is only necessary to compare the author's observations with the ethics in the last article, which were compiled from a work by Roderic a Castro, entitled "Medicus-Politicus sive de officiis Medico-Politicis tractatus, quatuor distinctus libris: in quibus non solum bonorum medicorum mores ac virtutes exprimuntur, malorum vero fraudes et imposturæ deteguntur: verum etiam pleraque alia circa novum hoc argumentum utilia atque jucunda exactissime proponuntur. Hamburg. anno CIↃ.IↃ.XIV. 1614." The comments and original views of Dr. G. are, however, numerous and valuable, and will be esteemed so long as medicine will be cultivated. As his work is almost obsolete, I trust that an analysis of its contents may be presented in a form which cannot fail to meet the eye of the industrious student. The author's remarks on the dignity and importance of medicine, and on the genius and education required for its proper cultivation, need not be inserted, as these points have been already discussed in a former section. The extracts I shall give do not obviate the necessity of referring to the original work—a production that ought to be in the hands of every practitioner.

Dr. Percival's valuable and truly classic work was re-published in 1803, and completed what Dr. Gregory had omitted. It consisted of the following chapters:—I. On Professional Conduct in Hospital Practice; II. In Private Practice; III. In relation to Apothecaries; and IV. In Cases which require a Knowledge of the Laws; to which were added, a Discourse on Hospital Duties, being the substance of a Sermon preached by the Rev. T. B. Percival, and some valuable notes and illustrations by the author himself. It was his intention to have treated of the powers, privileges, honours, and emoluments of the faculty, an object he did not accomplish. The work was arranged in 1792, as a code of institutes and precepts for the professional conduct of the physicians and surgeons of the Royal Manchester Infirmary, and afterwards extended into a system of Medical Ethics, "in which," says his biographer, "he has drawn a portrait of himself, by tracing, with his own hand, what sort of character a physician ought to be." The work consists of several aphorisms, on which very inappropriate comments have been made by the anonymous editor of the last edition. Of the original opinions of Dr. Percival I shall avail myself; and therefore cannot be considered to interfere with the copyright of the last and worst edition of his work.

In citing the opinions of Dr. Percival and others, I claim the usual privilege of all writers, to collect and arrange materials from all available sources, which are public property. This privilege is sanctioned by the laws of the country. In a word, I shall endeavour to prove that the most eminent members of the profession are the strongest advocates of a branch of education which has been most preposterously overlooked and neglected. Want of leisure precludes me from making sufficient research for the compilation of a complete system of ethics; but I trust I shall be able to accumulate a mass of facts, which will perfect the subject they so ably and laudably commenced.

The following is a condensed detail of Dr. Gregory's opinions on the duties of medical practitioners:—

Physicians, considered as a body of men who live by medicine as a profession, have an interest separate and distinct from the honour of the science. In pursuit of this interest, some have acted with candour, with honour, with the ingenuous and liberal manners of gentlemen. Conscious of their own worth, they disdained every artifice, and depended for success on their real merit. But such men are not the most numerous in any profession. Some impelled by necessity, some stimulated by vanity, and others anxious to conceal ignorance, have had recourse to various mean and unworthy arts to raise their importance among the ignorant, who are always the most numerous part of mankind. Some of these arts have been an affectation of mystery in all their writings and conversations relating to their profession; an affectation of knowledge, inscrutable to all, except the adepts of the science; an air of perfect confidence in their own skill and abilities; and a demeanour solemn, contemptuous, and highly expressive of self-sufficiency. These arts, however well they might succeed with the rest of mankind, could not escape the censure of the more judicious, nor elude the ridicule of men of wit and humour. The stage, in particular, has used freedom with the professors of the salutary art; but it is evident, that most of the satire is levelled against the particular notions or manners of individuals, and not against the science itself.

The practice of the healing art affords a vast field for the exercise of humanity. A physician has numberless opportunities of giving that relief to distress, which is not to be purchased with the wealth of India. This, to a benevolent mind, must be one of the greatest pleasures. But, besides the good which a physician has it often in his power to do, in consequence of skill in his profession, there are many occasions that call for his assistance as a man;—as one who feels for the misfortunes of his fellow-creatures. In this respect he has many opportunities of displaying patience, good nature, generosity, compassion, and all the gentler virtues that do honour to human nature. A physician endowed with this virtue diffuses consolation and comfort; he employs his talents, his time, and his fortune, in removing misery. He is the friend of the poor and unfortunate. The victims of misery, those of disease and of death, offer a distressing, a shocking picture. Here is an opportunity of doing good; in such cases man can assist man without any witness; it is here that generosity, benevolence, and tender pity, may be exerted to dry up tears and wailings. Is there any other class of citizens that perform these duties with so much zeal and courage as medical practitioners? These labours, these pleasures, are those of almost all the practitioners of medicine; they have their first lessons from the poor and miserable, who feel their benevolence and virtue. The disinterested cares given to the sick are always recompensed, the practitioner invariably finds, that his benevolence and charity are the foundation of his celebrity. When he acquires a high reputation, he must not forget the means by which he has acquired it; the poor and miserable are the base of his fame and prosperity. When he acquires fame and wealth, he still gives his aid to the poor at hospitals, dispensaries, or at his own residence. The faculty has often been reproached with hardness of heart, occasioned, as is supposed, by their being so much conversant with human misery. I hope and believe the charge is unjust; for habit may beget a command of temper, and a seeming composure which is often mistaken for absolute insensibility. But, by the way, I must observe, that, when this insensibility is real, it is a misfortune for a physician, as it deprives him of one of the most natural and powerful incitements to exert himself for the relief of his patient. On the other hand, a physician of too much sensibility may be rendered incapable of doing his duty, from anxiety, and excess of sympathy; which cloud his understanding, depress his mind, and prevent him from acting with that steadiness and vigour, upon which perhaps the life of his patient in a great measure depends.

Though a physician possess that enlarged medical genius already described, yet talents of another kind are necessary. He has not only for an object the improvement of his own mind, but he must study the temper, and struggle with the prejudices of his patient, of his relations, and of the world in general; nay, he must guard himself against the ill offices of those, whose interest interferes with him; and it unfortunately happens, that the only judges of his medical merit are those who have sinister views in concealing or depreciating it. Hence appears the necessity of a physician's having a large share of good sense, and knowledge of the world, as well as medical genius and learning.

Such are the genius and talent required in a physician; but a certain command of the temper and passions, either natural or acquired, must be added, in order to give them their full advantage. Sudden emergencies often occur in practice, and diseases often take unexpected turns, which are

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apt to flutter the spirits of a man of lively parts and of a warm temper.

Accidents of this kind may affect his judgment in such a manner as to unfit him for discerning what is proper to be done; or, if he does perceive it, may nevertheless render him irresolute. Yet such occasions call for the quickest discernment, and the steadiest and most resolute conduct; and the more, as the sick so readily take the alarm, when they discover any diffidence in their physician. The weaknesses too and bad behaviour of patients, and a number of little difficulties and contradictions which every physician must encounter in his practice, are apt to ruffle his temper, and consequently to cloud his judgment, and make him forget propriety and decency of behaviour. Hence appears the advantage of a physician's possessing presence of mind, composure, steadiness, and an appearance of resolution, even in cases where, in his own judgment, he is fully sensible of the difficulty.

I come now to mention the moral qualities peculiarly required in the character of a physician. The chief of these is humanity; that sensibility of heart which makes us feel for the distresses of our fellow-creatures, and which of consequence incites us in the most powerful manner to relieve them. Sympathy produces an anxious attention to a thousand little circumstances that may tend to relieve the patient; an attention which money can never purchase: hence the inexpressible comfort of having a friend for a physician. Sympathy naturally engages the affection and confidence of a patient, which in many cases is of the utmost consequence to his recovery. If the physician possesses gentleness of manners, and a compassionate heart, and what Shakspeare so emphatically calls "the milk of human kindness," the patient feels his approach like that of a guardian angel ministering to his relief; while every visit of a physician who is unfeeling, and rough in his manners, makes his heart sick within him, as at the presence of one who comes to pronounce his doom. Men of the most compassionate tempers, by being daily conversant with scenes of distress, acquire, in process of time, that composure and firmness of mind so necessary in the practice of medicine. They can feel whatever is amiable in pity, without suffering it to enervate or unman them. Such physicians as are callous to sentiments of humanity, treat this sympathy with ridicule, and represent it either as hypocrisy, or as the indication of a feeble mind. That sympathy is often affected, I am afraid, is too true; but this affectation is easily seen through. Real sympathy is never ostentatious, on the contrary, it rather strives to conceal itself. But what most effectually detects this hypocrisy is a physician's different manner of behaving to people in high and people in low life; to those who reward him handsomely, and those who have not the means to do it. A generous and elevated mind is even more shy in expressing sympathy with those of high rank, than with those in humbler life; being jealous of the unworthy construction so usually annexed to it. The insinuation that a compassionate and feeling heart is commonly accompanied with a weak understanding and a feeble mind, is malignant and false. Experience demonstrates, that a gentle and humane temper, far from being inconsistent with vigour of mind, is its usual attendant; and that rough and blustering manners generally accompany a weak understanding and a mean soul, and are indeed frequently affected by men void of magnanimity and personal courage, in order to conceal their natural defects.

There is a species of good humour different from the sympathy I have been speaking of, which is likewise amiable in a physician. It consists in a certain gentleness and flexibility, which makes him suffer with patience, and even apparent cheerfulness, the many contradictions and disappointments he is subjected to in his practice. If he is rigid and too minute in his directions about regimen, he may be assured they will not be strictly followed; and if he is severe in his manners, the deviations from his rules will as certainly be concealed from him. The consequence is, that he is kept in ignorance of the true state of his patient; he ascribes to the consequence of the disease what is merely owing to irregularities in diet, and attributes effects to medicines which were perhaps never taken. The errors which in this way he may be led into are sufficiently obvious, and might easily be prevented by a prudent relaxation of rules that cannot well be obeyed. The government of a physician over his patient should undoubtedly be absolute; but an absolute government very few patients will submit to. A prudent physician should therefore prescribe such laws, as though not the best, are yet the best that will be observed; of different evils, he should choose the least; and, at no rate, lose the confidence of his patient, so as to be deceived by him as to his true situation. This indulgence, however, which I am pleading for, must be managed with judgment and discretion; as it is very necessary that a physician should support a proper dignity and authority with his patients, for their sakes as well as his own.

There is a numerous class of patients who put a physician's good nature and patience to a severe trial; those I mean who suffer under nervous ailments. Although the fears of these patients are generally groundless, yet their sufferings are real; and the disease is as much seated in the constitution as a rheumatism or a dropsy. To treat their complaints with ridicule or neglect, from supposing them the effect of a crazy imagination, is equally cruel and absurd.* They generally arise from, or are attended with, bodily disorders obvious enough; but supposing them otherwise, still it is the physician's duty to do every thing in his power for the relief of the distressed. Disorders of the imagination may be as properly the object of a physician's attention as those of the body; and surely they are, frequently, of all distresses the greatest, and demand the most tender sympathy; but it requires address and good sense in a physician to manage them properly. If he seems to treat them slightly, or with unseasonable mirth, the patient is hurt beyond measure; if he is too anxiously attentive to every little circumstance, he feeds the disease. For the patient's sake therefore, as well as his own, he must endeavour to strike the medium between negligence and ridicule on the one hand, and too much solicitude about every trifling symptom on the other. He may sometimes divert the mind, without seeming to intend it, from its present sufferings, and from its melancholy prospects of the future, by insensibly introducing subjects that are amusing or interesting; and sometimes he may successfully employ a delicate and good-natured pleasantry.

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* It will generally be found that there is disease in the brain or spinal marrow (cerebro-spinal system), or in some of the organs in the abdomen; as the stomach, liver, bowels, spleen, kidneys, womb, &c.

This class of patients are in general extremely unreasonable. They are constantly complaining, nothing does them good, and every thing injures them. They suppose that they labour under one or many incurable diseases. They complain of every disease, and more than every disease; or, as it is well expressed, "de omnibus rebus, et quibusdam aliis." They do not know, nor can they understand, that disease in any part of the body may derange the whole organs, in consequence of the universal nervous connection; or that all their unpleasant, and to them unaccountable sensations, are as obvious as the noon-day sun to every well-educated medical practitioner. They are excessively, or morbidly sensitive; they watch every cast of countenance; they put the most unfavourable construction on every sentence uttered by their medical attendant; they fear the worst; and, should he deliver an ambiguous or doubtful prognosis, they fear him much more than they are pleased with him. Their esteem and respect are very variable and inconstant, and very readily converted into hatred and contempt. No matter how much you relieve them, even after the most eminent practitioners have failed, you are suddenly dismissed without the slightest reason, more especially when women are your patients. I have been repeatedly treated in this way, and after many other practitioners have been consulted, again recalled. But we must not forget the adage, "*varia et mutabilis fœmina*," in plain language, women are variable and changeable; and I must add, when excessively nervous or hypochondriacal, very often most unreasonable. Disease, however, is their excuse; and every humane physician will forget and forgive their inconsistencies, however remarkable. Such patients may imagine the most improbable conditions of constitution, as being made of glass, butter, &c., being a grain of wheat, pregnant of a hen and her chickens, &c.; examples of which have fallen under my own observations. The fact is, that many nervous persons and hypochondriacs do not possess perfect reason; and, therefore, great allowances must be made for them.

We sometimes see a remarkable difference between the behaviour of a physician at his first setting out, and afterwards when fully established in reputation and practice. In the beginning, he is affable, polite, humane, and assiduously attentive to his patients; but afterwards, when he has reaped the fruits of such a behaviour, and finds himself independent, he assumes a very different tone; he becomes haughty, rapacious, and careless, and often somewhat brutal in his manners. Conscious of the ascendancy he has acquired, he acts a despotic part, and takes a most ungenerous advantage of the confidence which people have in his abilities.* A physician, by the nature of his profession, has many opportunities of knowing the private characters and concerns of the families in which he is employed. Besides, what he may learn from his own observation, he is often admitted to the confidence of those who perhaps think they owe their life to his care. He sees people in the most disadvantageous circumstances, very different from those in which the world views them—oppressed with pain, sickness, and low spirits. In these humiliating situations, instead of wonted cheerfulness, evenness of temper, and vigour of mind, he meets with peevishness, impatience, and timidity. Hence it appears, how much the characters of individuals, and the credit of families, may sometimes depend on the discretion, secrecy, and honour of a physician. Secrecy is particularly requisite where women are concerned. Independently of the peculiar tenderness with which a woman's character should be treated, there are certain circumstances of health which, though in no respect connected with her reputation, every woman, from the natural delicacy of her sex, is anxious to conceal; and, in some cases, the concealment of these circumstances may be of consequence to her health, to her interest, and to her happiness.

Temperance and sobriety are virtues peculiarly required in a physician. In the course of an extensive practice, difficult cases frequently occur, which demand the most vigorous exertion of memory and judgment. I have heard it said of some eminent physicians, that they prescribed as well when drunk as when sober. If there was any truth in this report, it contained a severe reflection against their abilities in their profession. It showed that they practised by rote, or prescribed for some of the more obvious symptoms, without attending to those nice peculiar circumstances, a knowledge of which constitutes the great difference between a physician who has genius and one who has none. Drunkenness implies a defect in the memory and judgment; it implies confusion of thought, perplexity, and unsteadiness; and must therefore unfit a man for every business that requires the lively and vigorous use of his understanding.

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* This is rarely the case at present; it, however, sometimes happens.

An obstinate adherence to an unsuccessful method of treating a disease, must be owing to a high degree of self-conceit, and a belief in the infallibility of a system. It has been the cause of the death of thousands. Patients ought to be indulged in every thing consistent with their safety; and if they are determined to try an improper or dangerous medicine, a physician should refuse his sanction, but he has no right to complain of his advice not being followed. A physician is often at a loss in speaking to his patients of their real situation, when it is dangerous. A deviation from truth is in this case both justifiable and necessary. It often happens that a person is extremely ill, but he may recover if he is not informed of his danger. Again, a man may not have settled his affairs, though the future happiness of his family depends on his making a settlement. In such cases the physician may apprize the friends, and occasionally the patient, of the necessity of the arrangement and disposal of his property. In all dangerous cases, the real situation of the patient should be communicated to his nearest relatives, as it gives them an opportunity of calling other assistance, if they think it necessary.

The patient is not to be deserted when his case is despaired of; it is as much the duty of a physician to alleviate pain, and to smooth the avenues of death, when inevitable, as to cure diseases; his presence and assistance as a friend may be both agreeable and useful, where his skill is of no further avail. In some cases we should caution the indiscreet enthusiasts among the clergy against too much zeal, as they often terrify the patient, and contribute to shorten a life which might otherwise be saved.

Medical men should never involve their patients in private and professional quarrels, in which the sick can have little or no concern. All personal feelings should be forgotten in consultations, the good of the patient ought to be the chief and only consideration. The quarrels of the faculty, when they end in appeals to the public, generally hurt the contending parties, discredit the profession, and expose it to ridicule and contempt. Nothing can justify the refusal to consult but want of temper, nor can such circumstances as the university where a person has taken a degree, "or whether he had any degree at all, justify the refusal." This assertion, I may observe, is at variance with the usages of the profession, though society has sanctioned it. Fellows of the College of Physicians refuse to meet graduates of all the British and Foreign universities in consultation, until admitted into the College. But of this hereafter. It becomes young practitioners to be particularly attentive to the propriety of their behaviour when consulting with their seniors. Besides the respect due to age, these are entitled to a particular deference from their longer and more extensive experience, provided it be scientific.

The revolutions indeed of medical hypotheses and systems are so quick, that an old and a young physician seldom reason in the same way on subjects of their profession; although the difference is sometimes rather apparent than real, when they use only a different language to express sentiments essentially the same. But it generally happens, that the speculations which principally engage the attention of young physicians seldom in any degree affect their practice; and therefore, as they are in a great measure foreign to the business, they should never introduce them in medical consultations. They show equal want of sense and good manners, when they wantonly take opportunities of expressing contempt for opinions as antiquated and exploded, in which their seniors have been educated, and which they hold as firmly established. A little reflection might teach them, that it is not impossible but in the course of a few years, their own most favourite theories may be discovered to be as weak and delusive as those which have gone before them: and this should lead them to consider how sensibly they may be hurt themselves, when they find those idols of their youth attacked by the petulant ridicule of the next generation; when, perhaps, they are arrived at a time of life when they have neither abilities nor temper to defend them.

There are, however, many old practitioners who have not kept pace with science, and who despise all new remedies. There are many who oppose and ridicule the stethoscope, the use of the alkaloid medicines, such as iodine, strychnine, &c.; as if these discoveries were not made known by Divine Providence, and as if medicine was a perfect and positive science. If a practitioner is ignorant of the value of new discoveries, he is not justified in abusing them; and, if they have been amply proved to be valuable, they ought to be adopted for the relief of the sick. Macoppe has ably commented on this point: "Si nova inventa, si elegantes recentiorum ignoras eas spurco lividoque non vituperes ore. Tuas liceat extollere, pedibus non alias calcare." It is a just opinion, that a man who is ignorant of new remedies or discoveries ought not to despise them; he may extol his own, but must not condemn those of others. Our predecessors have done much; we have done much; but a vast deal remains to be done by our successors. It is to be recollected, that diseases are cured with remedies, and not by disputation. "When you are an old practitioner, you must not be ashamed to praise the new remedy of a junior, when more efficacious than your own. You must not look on the young practitioner with a jaundiced eye; he has left the schools, and is generally more conversant with the actual state of science than you are. Praise what is just, be silent of what is doubtful or inefficacious. Do not praise first, and vituperate afterwards."

A routine practitioner is ignorant of the progress of science, and is consequently self-opinionated. He is like a machine that always performs the same evolutions. He dispenses with all study, and he is content with what the vulgar consider experience.

This experience is necessarily false; for how can any man exercise an art of whose principles he is ignorant? Dewees has well observed, "that an obstetrician may have thirty years experience, but, without a knowledge of first principles, he is as ignorant and dangerous as he who has had the slightest experience." A question has been asked, whether a senior or junior physician ought to be preferred? It has been answered, that, in common disorders, a senior is preferable; but a junior in difficult and complicated diseases. "I hold," says Kyper, "that a physician cannot be experienced, unless he is learned; because an ignorant man does not know how to make judicious observation, or to deduce correct experience. No one can be a good practitioner unless he has been properly educated in public schools and hospitals, and has kept pace with the progress of science." Students are now better informed than their teachers were fifty years ago; they are taught all the new doctrines, and must excel those who are content with old ones. The ablest physician is he who is of middle age, and possesses real scientific knowledge, and whose judgment is formed on science, after sober and extensive observation on the poor, and at hospitals and dispensaries. He is not less informed than a young practitioner, and has the superior advantage of great experience. He is judicious in consultations, intrepid in dangers, competent to anticipate results, fertile in his resources, and endowed with great sagacity. Knowledge makes a young man old; and ignorance makes an old man a student. Talent compensates for the want of age—

"Quid numeras annos, vixi maturior annis;
Acta senem faciunt, hæc numerandi tibi."

It is not a head adorned with grey hairs that establishes merit; it is superiority in consultation, and at the bed-side of the sick. A young man may be a great physician, but an old man can scarcely be a great surgeon, and decidedly not a great physician. Talent, and not years, makes a good physician or surgeon.

A young man, gifted with genius for medicine, will in a few years be a great practitioner; but a man of sixty years of age, though he has seen one hundred thousand patients, will never be a good physician or surgeon, if deprived of this valuable gift of nature.

It is therefore an error to imagine, that the best practitioner is he who has seen the most cases. This is a popular prejudice; but, as Zimmerman observes, they do not inquire whether such a practitioner has received a proper medical education, whether he is a man of penetration and genius, though he is grey-headed. It is for this reason that many prefer an old to a young practitioner; they consider senescence and experience inseparable. They cannot distinguish scientific experience from common routine. It is also a fact, that old practitioners entertain the vulgar notion; in their opinion, a young man, of the greatest talent, is only a young man, and they can never believe that he can be equal to themselves. In their consultations and writings they maintain their superiority, even when the public confidence is being withdrawn from them, and when the world thinks they ought to retire. They forget, or perhaps have never seen the saying of Galen, that men of mere experience, without previous education, may be considered idiots; but the axiom of this venerated author is so apposite, that I must quote it: "Medicos qui solam experientiam sequuntur, non admittimus; quoniam ipsi idiotæ faciunt, quæ vident inspicientes, et rerum quidem eventum continentes, causam autem ignorantes." This remark applies to uneducated practitioners only, and not to the scientific and experienced.

The latter, when advanced in life, are esteemed and cherished by the public and the profession, they are the Mentors of their juniors; their sentiments are received with profound respect; and they are heard with a religious emotion in the lecture-room and in consultations.

But as age advances the intellectual faculties become enfeebled. Horace said,

> "Multa senem circumveniunt incommoda."

And Virgil expressed the same opinion:

> "Tarda senectus
> Debilitat vires animi mutatque vigorem."

On the arrival of senescence the most renowned physicians have lost all their practice. They have often proclaimed their prerogative of experience, and fruitlessly endeavoured to deprecate their juniors. They have said that these had little patience, no assiduity, circumspection; their impetuosity confuses them, they cannot coolly observe nature, judge accurately, preserve constancy, or form an accurate opinion of the nature or treatment of diseases.

It must, however, be obvious, that these assertions are groundless, because there is no reason why young practitioners, who are properly educated, who are conversant with the old and new opinions, and who are in the prime of life, when the intellectual faculties are fully developed, should not observe, think, reason, and practise, as well as their seniors. Many proofs might be adduced to support this statement, but a few shall suffice. Harvey discovered the circulation of the blood at an early age; Baglivi, who was the restorer of medicine, died at the age of thirty-nine; Bichat died at the age of thirty-one years.

Indeed, a man who is not a good physician or surgeon at the age of thirty, provided he has enjoyed ample opportunities, will never be one; for it is not years, but knowledge, that constitutes such a character.

A young physician of talent, who has received a good and extensive education, who has studied with assiduity all the elementary sciences, as well as the practice of medicine, surgery, obstetricy, and pharmacy; who has read all the best works in the vernacular and other languages, who has rigidly observed the effects of medicines for years, will far surpass his contemporaries in the aggregate, and leave them, whether old or young, immeasurably behind him. It is true, he may learn wisdom and caution from his seniors, when scientific and acquainted with the actual state of the science and practice of the healing art; but this very seldom happens. Those advanced in age, and actively engaged in practice, are generally unacquainted with the rapid progress of medicine; and their opinions are too often erroneous. Nevertheless, the junior is bound to respect his senior, because to honour a master is to honour one's self. Age is honourable, and ought to be always respected.

Dr. John Gregory defended the necessity of medical men being versed in all the branches of the healing art, and concludes by observing, "Every department of the profession is respectable, when exercised with capacity and integrity. I only contend for an evident truth, either that the different branches should be separately professed, or, if one person will profess all, that he should be regularly educated to, and thoroughly master of all. I am not here adjusting points of precedence, or insinuating the deference due to degrees in medicine. As a doctor's degree can never confer sense, the title alone can never command regard; neither should the want of it deprive any man of the esteem and deference due to real merit. If a surgeon or apothecary has had the education, and acquired the knowledge of a physician, he is a physician to all intents and purposes, whether he has a degree or not, and ought to be respected and treated accordingly. In Great Britain, surgery is a liberal profession. In many parts of it, surgeons or apothecaries are the physicians in ordinary to most families, for which trust they are often well qualified by their education and knowledge; and a physician is only called where a case is difficult, or attended with danger. There are certain limits, however, between the two professions, which ought to be attended to: as they are established by the customs of the country, and by the rules of their several societies. But a physician of a candid and liberal spirit, will never take advantage of what a nominal distinction, and certain privileges, give him over other men who, in point of real merit, are his equals; and will feel no superiority, but what arises from superior learning, superior abilities, and more liberal manners. He will despise those distinctions founded in vanity, self-interest, or caprice; and will be careful that the interests of science and of mankind shall never be hurt, on his part, by a punctilious adherence to formalities."

Much stress has been laid on the formality of a physician's dress, but there is no reason in preferring one garb to another. In some cases there is great impropriety in having any distinguishing formality in dress and manners. Negligence and luxuriousness of dress are extremes, and ought to be avoided. A respectable appearance, propriety, convenience, and elegance without pretension, are the characters which ought to mark the costume of a medical practitioner. Carelessness or foppishness in dress are unworthy of the followers of the healing art. The vulgar attach great importance to personal appearance. The professions of theology and law take advantage of this weakness; and still continue to wear peculiar habiliments, while the scarlet robes, velvet caps, and gold-headed canes of the professors of physic are abandoned. The divines and juris-consults are, perhaps, as wise as the Esculapians, and though the latter may dress as they please, I cannot help agreeing in opinion with those who maintain that external appearance is every thing with the world. For this reason the dress of medical men should be grave and elegant, not showy or *à la mode.* A cravat tied in the newest fashion, a coat of the colour and cut of the day, and all the other frivolities of the passing hour, are unworthy of the professors of the noble science of healing. A philosophic physician allows his tailor to equip him. Macoppe makes some happy remarks on moustaches, and contends that knowledge does not depend on hair, which characterizes the head or hope of the flock—vir gregis, ipse caper, but is no proof of philosophical or medical knowledge. Perfumery and odours were also condemned by Hippocrates, as they are often disagreeable and hurtful to delicate patients, especially to nervous and delicate women in whom they may excite fainting, vomiting, spasms, &c. The father of medicine taught, that a medical practitioner ought to avoid all odoriferous apparel, and that he was most perfumed who was not at all perfumed: optimè olet medicus quum nihil olet. Septal, Roderic a Castro, Triller, and other medical moralists, inculcate this doctrine. Musk, amber, and other perfumes, are disagreeable to many persons, cause head-ache, vertigo, convulsions, hysteria, &c.; and he who uses them is the author and not the remover of diseases.

The attendance should be in proportion to the urgency and danger of the disease. A patient or his friends have a curiosity to know the nature of the medicine prescribed, which it is often very improper to gratify; but other cases occur in which it may be proper to acquaint the patient with the nature of remedies, as the peculiarities of constitution require great attention, both as to the quantity and quality of certain medicines. Such are the chief of the duties of medical men, according to the amiable and revered Dr. John Gregory;

the observance of which cannot fail to promote the honour and dignity of the profession. He included many minor topics, which need not be recorded at the present period.

There are certain duties belonging to the learned professions which are supreme, and which no individual and no set of men can, either for themselves or their successors, violate, renounce, or neglect, without substantial injustice. These duties, so far as they relate to physicians, are comprised in the oaths required by the Universities, Colleges of Physicians, and in one of the Colleges of Surgeons, in this empire. The substance of these oaths is that proposed by Hippocrates nearly 2000 years ago, and the oath was formerly administered in all Universities in which medicine was taught, to those who were created doctors, and to those who were licensed to practise by the Colleges of Physicians. The oath required by the Edinburgh University is in the following words. After an invocation of the Deity, the graduate pronounces these words: "Tum porro artem medicam caute, caste, probeque excercitaturum, et quoad potero omnia ad ægrotorum corporum salutem conducentia cum fide procuraturum, quæ denique inter medendum visa vel audita silere convenit non sine gravi causa vulgaturum. Ita presens spondenti adsit Numen." "To practise physic *cautiously*, *chastely*, *and honourably;* and faithfully to procure all things conducive to the health of the bodies of the sick; and lastly, never, without great cause, to divulge any thing that ought to be concealed, which may be heard or seen during professional attendance. To this oath let the Deity be witness."* I believe no similar oath is required by the Universities of Oxford, Cambridge, Dublin, Glasgow, Aberdeen, or Saint Andrews, or by any of the Colleges of Physicians or Surgeons, except those of London. The Royal College of Physicians requires the following promise (not an oath) from its members, fellows, and licentiates, and prescribes a code of moral statutes:—"Dabis fidem te observaturum statuta Collegii, aut mulctas tibi contra facienti irrogandas prompté persoluturum, omniaque in medicina facienda pro viribus facturum, in honorem Collegii, et reipublicæ utilitatem." "You faithfully promise that you will observe the statutes of the College, and that you will promptly discharge all fines imposed on you for the breach thereof, and that you will do every thing in the practice of medicine for the conservation of health, to the honour of the College, and the good of the public." The following are the *Statutes of Morality* of the Royal College of Physicians of London in 1835:—

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* The obligations of this oath will be fully explained after the insertion of the whole of the British Moral Statutes.

De Conversatione Morali et Statutis Pœnalibus.

1. NULLUS, sive Socius, sive Candidatus, sive Permissus fuerit, Socium aut Candidatum aut Permissum ignorantiæ in arte suâ vel maleficii nomine, nisi coram judicibus legitimis accuset, aut coram quibusvis afficiat contumeliis. Si quem contrà fecisse Præsidenti et Censoribus aut eorum majori parti innotuerit, primâ vice solvat quatuor libras, secundâ vice duplicetur mulcta; quòd si tertio quis similiter deliquerit, et modo prædicto convictus fuerit, si quidem Socius aut Candidatus fuerit, expellatur è Societate nostrâ, vel è Candidatorum ordine; sin idem sit è Permissorum numero, solvat decem libras. Quam quidem decem librarum mulctam quotiescunque idem Permissus ejusdem delicti modo prædicto denuò convictus fuerit, ipsi irrogandam statuimus.

2. Nullus Socius, Candidatus, vel Permissus salutatione officiosâ, vel animi benevoli obtentu opem medicam ultrò offerat, nedum subministret ægro cuilibet, quem Medici cujusvis, sive Socii, sive Candidati, sive Permissi, curæ commissum esse cognoverit, et ad quem non accersitus fuerit.

3. Si quis autem malitiæ hujusmodi convictus fuerit, præter ignominiæ notam quam isti (quantum in nobis est) inuri volumus, quadraginta solidos mulctetur à Presidente et Censoribus.

4. Si quis paciscatur cum Pharmacopolis de aliquâ pretii parte ex medicamentis præscribendis percipiendâ, si sit Socius aut Candidatus, et hujusce delicti à Præsidente et majore parte Sociorum, in Commitiis majoribus sive ordinariis sive extraordinariis, præsentium convictus fuerit, è Societate nostrâ, vel è Candidatorum ordine expellatur.

5. Sin Permissus delicti hujusce à Præsidente et Censoribus, aut eorum majore parte, convictus fuerit, decem libras quotiescunque id admiserit, mulctetur.

6. Medicus quisque, sive Socius, sive Candidatus, sive Permissus fuerit, singulis suis schedulis, in quibus ægri curatio præscribitur, diem præscriptionis, ægri nomen, et sui denique nominis literas initiales adscribat; nisi causa intersit à Præsidente et Censoribus approbanda.

7. Si plures Medici curationis gratiâ convenerint, consultandum est summâ modestiâ, et non nisi semotis arbitris à re alienis. Nec quisquam præscribat, imò ne innuat quidem quid agendum sit, coram ægro, aut adstantibus, priusquam junctis consiliis inter ipsos Medicos curandi methodus fuerit constituta. Sin autem Medici in diversas iverint sententias, ita ut in eandem medendi methodum consentire nequeant, summâ tamen prudentiâ et moderatione se gerant; eorumque dissentionem ita, ut tàm ægro quàm amicis ejus quàm minimum molestiæ pariat, ordinarius medicus ægro aut adstantibus significet.

8. Qui leges has consultandi non observaverit, et à Præsidente et Censoribus aut eorum majore parte convictus fuerit, quinque libras mulctetur.

9. Nullus denique Medicus, sive Socius, sive Candidatus, sive Permissus, consilium ineat de rebus Medico propriis, in civitate Londino et intra septem milliaria in circuitu ejusdem, nisi cum aliquo è Sociorum vel Candidatorum vel Permissorum numero, sub pœnâ quinque librarum, quotiescunque hujusce delicti à Præsidente et Censoribus, aut eorum majore parte convictus fuerit.

10. Omnes mulctæ quæ per statuta nostra irrogatæ fuerint illicò solvantur.

1.—No fellow, candidate, or licentiate, shall accuse a fellow, candidate, or licentiate, of ignorance or mala praxis of his art, unless before legitimate judges, or before those concerned. If it be known to the president and censors, or the majority of them, that any person shall so act, he shall pay £4. for the first offence, and the fine will be doubled for the second; but if he transgress a third time, and be convicted in the manner mentioned, if he is a fellow or candidate he

shall be expelled from our society, or from the order of candidates; and if he is a licentiate he shall pay £10.; and we ordain, that licentiates shall be fined a like sum for every similar transgression.

2.—No fellow, candidate, or licentiate, shall afford medical aid or prescribe for a patient whom he knows is under the care of another physician, whether fellow, candidate, or licentiate, and to whom he has not been regularly called.

3.—If any one be convicted of this vice, besides the known ignominy which we wish him to suffer, he shall be fined £2. by the president and censors.

4.—If any one shall bargain with apothecaries for any per centage on prescriptions, if a fellow or candidate, and if convicted in the manner before mentioned, he shall be expelled from the fellowship, or from the order of candidates.

5.—If a licentiate, he shall be fined £10. for each offence.

6.—Every physician, whether fellow, candidate, or licentiate, shall inscribe his initials, the date of the prescription, and name of the patient, on every prescription, unless some cause intervenes which shall be approved by the president and censors.

7.—If many physicians be called to a patient, they are to consult with great modesty, and in the absence of witnesses or unprofessional persons. Nor shall any one prescribe or insinuate what is to be done to the sick or attendants, before he has stated his method in consultation. But, as medical men have different opinions, so that they may not agree in the plan of treatment, they are to conduct themselves with the greatest prudence and moderation; the ordinary attendant shall signify to the sick and attendants their dissension, so that it may appear as trifling, and as slightly disagreeable to the patient or his friends as possible.

8.—Whoever will not obey these rules of consultation, and is convicted by the president and censors, shall be fined £5.

9.—Finally, no physician, fellow, candidate, or licentiate, shall consult in the city of London, or within seven miles thereof, unless with a fellow, candidate, or licentiate, under a penalty of £5. as often as convicted by the president and censors, or majority of them.

10.—All fines imposed by these statutes must be paid.

It is much to be regretted, that the great bulk of the profession—University graduates in medicine, surgeons, and apothecaries—have no opportunity of being acquainted with these admirable statutes, or have nothing similar to inform them of the etiquette they owe to each other. In printing these statutes, and placing them before the medical public, I hope and trust I may add to the honour and dignity of the profession. The majority of the tenets maintained in them are highly conducive to the fame of every class of medical men; and, if duly observed, would extinguish that base and unprofessional and ungentlemanly behaviour, which of late has characterized too many medical practitioners, and has debased and degraded the profession. The disputes and calumnies of medical men have been so frequent, so violent, so notorious of late, that the character of the profession is lowered in the estimation of the public to a degree unequalled in the history of medicine. Actions against medical men by their contemporaries, or their patients, are now frequent in our courts of justice. This degeneracy of the profession is not confined to this country, it extends throughout Europe, and has even crossed the Atlantic Ocean; and it arises from the exclusion of medical ethics from the prescribed courses of professional education. This malignant spirit pervades every branch of the healing art; the physicians, the surgeons, and the apothecaries, are the most prominent of litigants in our courts of justice. What a falling off is here! If we turn to private practice, we find those uninfluenced by the statutes under consideration, vituperating each other, "by look, gesture, and suspicious silence," and often without any disguise; and the injured individual has no remedy afforded him by the body to which he belongs, and which gravely promises him rights, privileges, immunities, and protection in the discharge of his vocation; his only remedy is an appeal to the laws of his country. But the fact is, our Colleges of Surgeons, and Companies of Apothecaries, have no power to protect their members; nor is there any country in the world, in which the laws relative to the practice of the medical profession are so imperfect and defective as in the British empire.

But to return to the subject immediately under consideration: I have to insert the oath required by the Royal College of Surgeons in this city, which is as follows:—"You swear that while you shall be a member of the Royal College of Surgeons in London, you will observe the statutes, bye-laws, ordinances, rules, and constitutions thereof; that you will obey every lawful summons issued by order of the court of assistants and examiners of the said college, or of either of them, having no reasonable excuse to the contrary: that you will pay such contributions as shall be legally assessed upon and demanded of you; that you will demean yourself *honourably* in the practice of your profession; and to the utmost of your power maintain the dignity and welfare of the college—So help you God." It is to be feared that some surgeons forget to demean themselves honourably in the practice of their profession, more especially as their rivals, the general practitioners, are under no such obligation. From the open violation of our laws relative to the practice of medicine, the surgeons act as physicians, and must become apothecaries in self-defence; the apothecaries act as physicians and surgeons, while the chemists and druggists, without any medical education whatever, act as physicians, surgeons, and apothecaries; and as to quacks, they are allowed to flourish to an illimitable extent, and to destroy more than the sword, famine, and pestilence united. Such is a true picture of the medical profession in the greatest nation upon earth—in a country pre-eminent for literature, the sciences and the arts:—such is the state of medical practice in England.

But I leave this part of the subject to another opportunity, and return to the topic more immediately under consideration That medical men should practise *cautiously*, *chastely*, and *honourably*, and observe strict secrecy in all delicate cases, and in all domestic affairs, which may fall under their notice during professional attendance, is not only consonant to the usage of the profession, but to common sense and justice. It would be highly improper to divulge the nature of certain diseases, or expose the affairs of families, to gratify idle curiosity, impertinence, or serve the purposes of an interested knave. The law, however, compels us to violate these principles; and hence the exception in the Edinburgh oath, "not to divulge without weighty reasons." In such cases the violation or renunciation of our moral and professional duties is compulsory.

Chastity and honour are general moral duties, and not peculiarly belonging to any one profession. No profession commands a greater purity of morals than the medical. The intimate confident of the other sex—the adviser in her mental and corporal diseases; but never the abuser of these advantages. Never has a properly educated physician employed his ascendancy to seduce innocence, which places herself in his hands; and scarcely ever has his voice been employed in corrupt discourses towards women who have selected him as their consoler and friend. A medical practitioner is often placed between his duties and vice; his station almost daily exposes him to sacrifice honour to interest; he frequently feels, without danger, the strongest passions;—but he thinks it more glorious and virtuous to conquer them. It is for the good of society that he employs his powerful influence in the most virtuous and honourable manner. Men who confide to him all that is dearest to them—their wives and children—have a just right to require of him a pure heart and untarnished morals. Such is the moral character of the entire profession in all countries, and it is but rarely, scarcely ever tarnished, notwithstanding the immense number of medical men, and the certainty that there must of necessity be a few exceptionable, alias unprincipled individuals, amongst them. Were medical practitioners to act immorally, they would cease to be employed; and society would place the signet of reprobation upon them. I am certain that there have not been half-a-dozen actions against medical practitioners in this country, for immoral conduct, since the first century to the present date. My position is therefore proved by historical records.

The multiplied studies of a truly informed medical practitioner; his various duties; the practice of his profession; the care of his reputation—all prevent him from participating in the commotions which occupy societies and empires. He avoids politics and political assemblies, while engaged in the peaceful pursuits of his profession. He takes no interest in the quarrels of sovereigns. There have been a few exceptions, but wise practitioners avoid all political and religious discussions. Their patients may entertain the most opposite opinions on these subjects; and no good ever results from medical practitioners involving themselves in disputes concerning them. In time of war, medical men feel equally bound to aid friends and enemies, according to the law of nations.

The duty of *caution* in practice, means "care not to expose the sick to any unnecessary danger." The best rule of conduct on this important point, is the simple and comprehensive, religious and moral precept, "Do unto others as you would they should do unto you." Whatever the practitioner does or advises to be done for the good of his patient, and what he would do in his own case, or in the case of those who are dearest to him—if he or they were in the same situation—is not only justifiable on his part, but it is his indispensable duty to do. The patient should have the chance, whether it be a hundred to one, or only one in a hundred in his favour. Whatever may be the result, the practitioner has the greatest of all consolation—the consciousness of rectitude—"mens conscia recti;" this will be his solace, should the case terminate unfavourably, when the vulgar, the ignorant, the envious, the malicious, and the interested, will not fail to blame him for the death of his patient. But if he administered a dangerous medicine, merely to gratify his own curiosity, or zeal for science—to ascertain the comparative advantage or disadvantage of some new remedy, either proposed by himself or suggested by others—he is held guilty of a breach of ethics, and of a high misdemeanour, and a great breach of trust towards his patient; and if the patient die, I apprehend, he might be severely punished.

Medical men have tried the most dangerous experiments upon themselves, from their zeal for science, and even sacrificed their lives; but patients, in general, have no such zeal for science—no ambition for such a crown of martyrdom—

and generally employ and pay their medical attendants for the very opposite purpose. It must be admitted, that men who would try experiments upon themselves, would be very apt to try experiments on their patients. It is a melancholy truth, but cannot be denied. The profession, however, has always reprobated such conduct; and the medical phrase of reproach and contempt for it, "*corio humano ludere*," to play with the human hide, abundantly testifies in what abomination it has been held by the faculty. It is unnecessary to dwell upon this point in this age, because all experiments are made upon the inferior animals; and the just reproach entertained by the faculty, in former times, is now inapplicable. But every man of common understanding well knows, that neither physic nor surgery can be practised without some danger to the sick. It is universally known, that many surgical operations are dangerous to life, and that all our most powerful remedies are highly dangerous; and more especially when improperly employed, or when they cannot be borne. A safe medicine is often extremely dangerous, from the peculiarity of constitution: and the great and urgent danger, in many diseases, requires the immediate use of dangerous remedies. It is admitted, by the best practitioners, that many remedies are still wanted for the cure of disease, and this want leads us most justifiably, and almost inevitably, to try new remedies on many occasions; and such experiments are not blamable, for they are necessary:—*sic enim medicina arta; subinde aliorum salute, aliorum interritu perniciosa discernans a salutaribus.* From these causes there results much inevitable danger in the practice of physic. From this acknowledged danger, results the important duty of caution in a physician, or care to make the danger as little as possible. Whatever is best for the sick, it is the indispensable duty of a medical man to do for them. It is his duty and obligation, "faithfully to do all things conducive to the health of his patients;" and this is so complete and indefeasible, that it cannot be set aside by any cause whatever.

The last obligation imposed on a medical practitioner, is discretion, or secrecy. The depositary of family secrets—often the possessor of the reputation of those who have reposed in him their confidence—to what disgrace would he not expose them, were he to divulge the mysteries he knows, which ought to be hidden from the public! Here, the unfortunate victim of seduction implores his succour and his silence; there, a father or a mother avows to him the unfortunate consequences of youth abandoned to passion. The confidence reposed in him, and revelations made to him, during his professional attendance, are such that honour commands him not to abuse the one, or publish the other, unless in our courts of justice, which have the power to compel him. Thence the phrase, *non sine gravi causa,* in the doctors' oath; that is, such secrets are not to be divulged without the greatest necessity; but the French medical moralists contend, that they ought not to be divulged even at the risk of liberty and life. Hippocrates inculcated this conduct in the oath he required of his disciples: "Quæ vero inter curandum aut etiam medicinam minime faciens, in communi hominum vitâ, vel videro, vel audiero, quæ minime in vulgus efferi oporteat ea arcana esse ratus, silebo." The Edinburgh university exacts a similar obligation.

Prudence is indispensably necessary in the practice of medicine—not only in the selection of medicines, but in moral conduct. The greatest care, and constant attention are required, to preserve the integrity of reputation. We are consulted in cases of the greatest delicacy and difficulty. We are the advisers of parents, husbands, wives, youths, and children. The most scrupulous morality is required in cases of girls and women. The presence of the mother, some near relation, or intimate female friend, is required in those delicate and frequent cases, in which the most secret charms of nature are subjected to indispensable examination, when the timid and blushing virgin is compelled to place at her feet the last veil of modesty. In these obstetric, and all female cases, let the following rules be rigidly observed. Modestissimus in curandis mulieribus existas; et si pectus, venter imus, aut aliæ arcanæ partes tangendæ, aut pertractandæ sunt, te fidelem, aut ita dicam, marmoreum et gelidum, animo constanti, vel effinge, vel efforma. Pessima, jure merito, tuo nomini fama inuretur, si lubrica manus, impurus animus, corrupti sermonis castitatem per solas etiam aures violabunt. Quorundam morborum, præcipue puellas, matronas, principes divexantium, aut eos, quibus ex his nomen aliquo modo periclitatur, labes ne detegas, secreto ac fido pectore, naturæ mortalium errores conde. Caute tamen in viduarum domos, ubi sunt virgines, petulcæ uxores, pulchræ ancillulæ juventutem intrude. Vidi mulierculas puellasque insano practicantium amore captas, ac dulcæ rabidæ tentigini remedium quærentes; vidique ex virginibus factas matres cum summo incauti præceptoris dedecore.

Such is the line of moral conduct which guides all religious and respectable medical practitioners. It is highly creditable to so large a portion of society in all civilized countries, that their moral conduct has been almost invariably so excellent. If medical practitioners were so immoral as to insult feminine dignity by soliciting the chastity of their patients, or of seducing them, they could not escape detection; and their punishment would be public execration, the severe inflictions of the offended law, and the utter ruin of their professional character. They would be instantly compelled to relinquish the profession. Women, when labouring under disease, or in the agonies of child-birth, are objects of sympathy and compassion, just as all mankind are when suffering from painful infirmities. Sensual impulse and severe pain are contrary influences, setting aside all moral feeling; and gallantry and brutality are equally incompatible. Amorous desire is extinguished by pain, and the brute deprived of reason is restrained by this law of nature. It is this law, as well as a moral obligation, that enables medical practitioners to act in the most virtuous manner towards their female patients, and to relieve their weaknesses and infirmities in the same manner as all other human diseases.

Such is the code of ethics which ought to influence medical men, both in public and in private practice; "but it is matter of question," says Dr. Gordon Smith, "whether it has in reality an existence."* This is a truism that cannot be doubted; and yet the rising members of the profession are expected to support the honor and dignity of the faculty, without any rules to guide them, without having heard a single word upon the subject, during their education. Hence the cause of that improper conduct which has degraded the profession to a degree unparalleled in the annals of British medicine. I shall not prosecute this subject at present, as it will be more properly considered in my account of the laws relative to the practice of every branch of medicine in this country, and of the constitution of the faculty.

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* Analysis of Medical Evidence.

I shall now conclude the subject with the Code of Ethics of Dr. Percival, and append some notes.

DR. PERCIVAL'S MEDICAL ETHICS.

SECTION I.

Of Professional Conduct relative to Hospitals, or other Medical Charities.

I. Hospital Physicians and Surgeons should minister to the sick, with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge depend on their skill, attention, and fidelity. They should study, also, in their deportment, so to unite tenderness with steadiness, and condescension with authority, as to inspire the minds of their patients with gratitude, respect, and confidence.

II. The choice of a physician or surgeon cannot be allowed to hospital patients, consistently with the regular and established succession of medical attendance. Yet personal confidence is not less important to the comfort and relief of the sick-poor, than of the rich under similar circumstances; and it would be equally just and humane, to inquire into and to indulge their partialities, by occasionally calling into consultation the favourite practitioner. The rectitude and wisdom of this conduct will be still more apparent, when it is recollected that patients in hospitals not unfrequently request their discharge, on a deceitful plea of having received relief; and afterwards procure another recommendation, that they may be admitted under the physician or surgeon of their choice. Such practices involve in them a degree of falsehood, produce unnecessary trouble, and may be the occasion of irreparable loss of time in the treatment of diseases.

III. The feelings and emotions of the patients, under critical circumstances, require to be known and attended to, no less than the symptoms of their diseases. Thus, extreme timidity with respect to venesection, contra-indicates its use in certain cases and constitutions. Even the prejudices of the sick are not to be contemned, or opposed with harshness. For though silenced by authority, they will operate secretly and forcibly on the mind, creating fear, anxiety, and watchfulness.

IV. As misapprehension may magnify real evils, or create imaginary ones, no discussion concerning the nature of the case should be entered into before the patients, either with the house-surgeon, the pupils of the hospitals, or any medical visiter.

V. In the large wards of an Infirmary, the patients should be interrogated concerning their complaints, in a tone of voice which cannot be overheard. Secrecy, also, when required by peculiar circumstances, should be strictly observed. And females should always be treated with the most scrupulous delicacy. To neglect or sport with their feelings is cruelty; and every wound thus inflicted tends to produce a callousness of mind, a contempt of decorum, and an insensibility to modesty and virtue. Let these considerations be forcibly and repeatedly urged on the hospital pupils.

VI. The moral and religious influence of sickness is so favourable to the best interests of men and of society, that it is justly regarded as an important object in the establishment of every hospital. The institutions for promoting it should, therefore, be encouraged by the physicians and surgeons whenever seasonable opportunities occur. And by pointing out these to the officiating clergyman, the sacred offices will be performed with propriety, discrimination, and greater certainty of success. The character of a physician is usually remote either from superstition or enthusiasm; and the aid which he is now exhorted to give, will tend to their exclusion from the hospital, where their effects have often been known to be not only baneful, but even fatal.

VII. It is one of the circumstances which softens the lot of the poor, that they are exempt from the solicitudes attendant on the disposal of property. Yet there are exceptions to this observation: and it may be necessary that an hospital patient, on the bed of sickness and death, should be reminded, by some friendly monitor, of the importance of a *last will* and *testament* to his wife, children, or relatives, who, otherwise, might be deprived of his effects, of his expected prize-money, or of some future residuary legacy. This kind office will be best performed by the house-surgeon, whose frequent attendance on the sick, diminishes their reserve, and entitles him to their familiar confidence. And he will doubtless regard the performance of it as a duty. For whatever is right to be done, and cannot by another be so well done, has the full force of moral and personal obligation.

VIII. The physicians and surgeons should not suffer themselves to be restrained, by parsimonious considerations, from prescribing *wine*, and *drugs*, even of *high price*, when required in diseases of extraordinary malignity and danger. The efficacy of every medicine is proportioned to its purity and goodness; and on the degree of these properties, *cæteris paribus*, both the cure of the sick, and the speediness of its accomplishment must depend. But when drugs of inferior quality are employed, it is requisite to administer them in larger doses, and to continue the use of them a longer period of time; circumstances which, probably, more than counterbalance any savings in their original price. If the case, however, were far otherwise, no *economy*, of a *fatal* tendency, *ought to be admitted into institutions*, which, founded on principles of the purest beneficence, in this country, when well conducted, can never want contributions adequate to their liberal support.

IX. Hospital affairs ought not to be incautiously revealed.

X. Professional charges are to be made only before a meeting of the faculty.

XI. Medical and surgical cases to be distinguished.

XII. Principles which authorize the use of new medicines and operations. (See page 71, *ante.*)

XIII. To advance professional improvement, a friendly and unreserved intercourse should subsist between the gentlemen of the faculty, with a free communication of whatever is extraordinary or interesting in the course of their hospital practice. And an account of every case or operation, which is rare, curious, or instructive, should be drawn up by the physician or surgeon to whose charge it devolves, and entered in a register kept for the purpose, but open only to the physicians and surgeons of the charity.

XIV. Hospital registers usually contain only a simple report of the number of patients admitted and discharged. By adopting a more comprehensive plan, they might be rendered subservient to medical science, and beneficial to mankind. The following sketch is offered, with deference to the gentlemen of the faculty. Let the register consist of three tables; the first specifying the number of patients admitted, cured, relieved, discharged, or dead; the second the several diseases of the patients, with their events; the third the sexes, ages, and occupations of the patients. The ages should be reduced into classes; and the tables adapted to the four divisions of the year. By such an institution, the increase or decrease of sickness; the attack, progress, and cessation of epidemics; the comparative healthiness of different situations, climates, and seasons; the influence of particular trades and manufactures on health and life; with many other curious circumstances, not more interesting to physicians than to the community, would be ascertained with sufficient precision.*

XV. By the adoption of the register, recommended in the foregoing article, physicians and surgeons would obtain a clearer insight into the comparative success of their hospital and private practice; and would be incited to a diligent investigation of the causes of such difference. In particular diseases it will be found to subsist in a very remarkable degree: and the discretionary power of the physician or surgeon, in the admission of patients, could not be exerted with more justice or humanity, than in refusing to consign to lingering suffering and almost certain death, a numerous class of patients, inadvertently recommended as objects of these charitable institutions. "In judging of diseases with regard to the propriety of their reception into hospitals," says an excellent writer, "the following general circumstances are to be considered."

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* There are no such case-books or registries in the London hospitals, even in 1835, and such as are kept are locked up, and students are seldom allowed to see them.

"Whether they be capable of speedy relief; because, as it is the intention of charity to relieve as great a number as possible, a quick change of objects is to be wished; and also because the inbred disease of hospitals will almost inevitably creep, in some degree, upon one who continues a long time in them, but will rarely attack one whose stay is short.

"Whether they require, in a particular manner, the superintendance of skilful persons, either on account of their acute and dangerous nature, or any singularity or intricacy attending them, or erroneous opinions prevailing among the common people concerning their treatment.

"Whether they be contagious, or subject in a peculiar degree to taint the air, and generate pestilential diseases.

"Whether a fresh and pure air be peculiarly requisite for their cure, and they be remarkably injured by any vitiation of it."*

XVI. But no precautions relative to the reception of patients, who labour under maladies incapable of relief, contagious in their nature, or liable to be aggravated by confinement in an impure atmosphere, can obviate the evils arising from close wards, and the false economy of crowding a number of persons into the least possible space. There are inbred diseases which it is the duty of the physician or surgeon to prevent, as far as lies in his power, by a strict and persevering attention to the whole medical polity of the hospital. This comprehends the discrimination of cases admissible, air, diet, cleanliness, and drugs; each of which articles should be subjected to a rigid scrutiny, at stated periods of time.

XVII. The establishment of a committee of the gentlemen of the faculty, to be held monthly, would tend to facilitate this interesting investigation, and to accomplish the most important objects of it.* By the free communication of remarks, various improvements would be suggested; by the regular discussing of them, they would be reduced to a definite and consistent form: and by the authority of united suffrages, they would have full influence over the governors of the charity. The exertions of individuals, however benevolent or judicious, often give rise to jealousy; are opposed by those who have not been consulted; and prove inefficient by wanting the collective energy of numbers.

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* See Dr. Aikin's Thoughts on Hospitals, p. 21. This suggestion is now universally adopted throughout the United Kingdom.

XVIII. The harmonious intercourse, which has been recommended to the gentlemen of the faculty, will naturally produce frequent consultations, viz., of the physicians on medical cases, of the surgeons on chirurgical cases, and of both united in cases of a compound nature, which falling under the department of each, may admit of elucidation by the reciprocal aid of the two professions.

XIX. In consultations on medical cases, the junior physician present should deliver his opinion first, and the others in the progressive order of their seniority. The same order should be observed in chirurgical cases; and a majority should be decisive in both: but if the numbers be equal, the decision should rest with the physician or surgeon, under whose care the patient is placed. No decision, however, should restrain the acting practitioner from making such variations in the mode of treatment, as future contingences may require, or a farther insight into the nature of the disorder may show to be expedient.

XX. In consultations on mixed cases, the junior surgeon should deliver his opinion first, and his brethren afterwards in succession, according to progressive seniority. The junior physician present should deliver his opinion after the senior surgeon; and the other physicians in the order above prescribed.

XXI. In every consultation, the case to be considered should be concisely stated by the physician or surgeon, who requests the aid of his brethren. The opinions relative to it should be delivered with brevity, agreeably to the preceding arrangement, and the decisions collected in the same order. The order of seniority, among the physicians and surgeons, may be regulated by the dates of their respective appointments in the hospital.*

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* This is now done by the medical committees of hospitals and dispensaries.

XXII. Due notice should be given of a consultation, and no person admitted to it, except physicians and surgeons of the hospital, and the house-surgeon, without the unanimous consent of the gentlemen present. If an examination of the patient be previously necessary, the particular circumstances of danger or difficulty should be carefully concealed from him, and every just precaution used to guard him from anxiety or alarm.

XXIII. No important operation should be determined upon, without a consultation of the physicians and surgeons, and the acquiescence of a majority of them. Twenty-four hours' notice of the proposed operation should be given, except in dangerous accidents, or when peculiar occurrences may render delay hazardous. The presence of a spectator should not be allowed during an operation, without the express permission of the operator.† All extra-official interference in the management of it should be forbidden. A decorous silence ought to be observed. It may be humane and salutary, however, for one of the attending physicians or surgeons to speak occasionally to the patient; to comfort him under his sufferings; and to give him assurance, if consistent with truth, that the operation goes on well, and promises a speedy and successful termination.‡

As an hospital is the best school for practical surgery, it would be liberal and beneficial to invite, in rotation, two surgeons of the town, who do not belong to the institution, to be present at each operation.

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* Seniority, in my opinion, ought to be determined by the date of admission into the Colleges or Apothecaries' societies. Suppose Sir Astley Cooper were to go and reside in some provincial city, he could not be considered junior to some young provincial surgeon.

† It is usual in London, that all members of the profession, who choose, and all medical students, may be present.

‡ The barbarity of some old hospital surgeons during operations, even on children, is disgraceful to such individuals, and to a civilized country.

XXIV. Hospital consultations ought not to be held on Sundays, except in cases of urgent necessity; and on such occasions an hour should be appointed, which does not interfere with attendance on public worship.*

XXV. It is an established usage, in some hospitals, to have a stated day in the week, for the performance of operations. But this may occasion improper delay, or equally unjustifiable anticipation. When several operations are to take place in succession, one patient should not have his mind agitated by the knowledge of the sufferings of another. The surgeon should change his apron, when besmeared; and the table or instruments should be freed from all marks of blood, and every thing that may excite terror.

XXVI. Dispensaries afford the widest sphere for the treatment of diseases, comprehending, not only such as ordinarily occur, but those which are so infectious, malignant, and fatal, as to be excluded from admission into Infirmaries. Happily, also, they neither tend to counteract that spirit of independence, which should be sedulously fostered in the poor, nor to preclude the practical exercise of those relative duties, "the charities of father, son, and brother," which constitute the strongest moral bonds of society. Being institutions less splendid and extensive than hospitals, they are well adapted to towns of moderate size; and might even be established, without difficulty, in populous country districts. Physicians and surgeons, in such situations, have generally great influence: and it would be truly honourable to exert it in a cause subservient to the interests of medical science, of commerce, and of philanthropy.

The duties which devolve on gentlemen of the faculty, engaged in the conduct of Dispensaries, are so nearly similar to those of hospital physicians and surgeons, as to be comprehended under the same professional and moral rules. But greater authority and greater condescension will be found requisite in domestic attendance on the poor; and human nature must be intimately studied, to acquire that full ascendancy over the prejudices, the caprices, and the passions of the sick, and of their relatives, which is essential to medical success.

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* It is most improper to interfere with the religion of the sick, by circulating tracts, bribing patients, giving them flannel, &c. The sick ought to have free will in the selection of clergymen of their own.

XXVII. Hospitals, appropriated to particular maladies, are established in different places, and claim both the patronage and the aid of the gentlemen of the faculty. To an asylum for female patients, labouring under syphilis, it is to be lamented that discouragements have been too often and successfully opposed. Yet whoever reflects on the variety of diseases to which the human body is incident, will find that a considerable part of them are derived from immoderate passions, and vicious indulgencies. Sloth, intemperance, and irregular desires are the great sources of those evils, which contract the duration, and embitter the enjoyment of life. But humanity, whilst she bewails the vices of mankind, incites us to alleviate the miseries which flow from them. And it may be proved, that a *lock hospital* is an institution founded on the most benevolent principles, consonant to sound policy, and favourable to reformation and to virtue. It provides relief for a painful and loathsome distemper, which contaminates, in its progress, the innocent as well as the guilty, and extends its baneful influence to future generations. It restores to virtue and to religion, those votaries whom pleasure has seduced, or villainy betrayed; and who now feel, by sad experience, that ruin, misery, and disgrace, are the wages of sin. Over such objects pity sheds the generous tear; austerity softens into forgiveness; and benevolence expands at the united pleas of frailty, penitence, and wretchedness.*

A few remarks on the preceding axioms are necessary.

The relief afforded by hospitals, though they are institutions of the most benevolent kind, is procured with difficulty; patients are admitted only one day in the week, no matter how dangerous their cases (unless they be accidents), fees are often required, the sick are removed from their families, the nurses are strangers. These defects are so manifest that the public have wisely established dispensaries to obviate them. In these establishments medical assistance is obtained with the greatest facility every day; it is afforded to one parent, without removing him from the means of earning support for himself and family, and to the other without withdrawing her from the superintendence of her domestic concerns. Besides, the natural affections, which every philanthropic mind must wish to see cherished, are reciprocally called into exercise, and strengthened, where the parent is the patient, where the wife becomes the nurse, and the children assistants; and medical aid is rendered more efficacious when the mind is relieved from the anxieties necessarily attendant upon a separation from family, and a removal from home. The early application on the first feelings of indisposition prevents the diffusion of contagious diseases; and pestilence, which once stalked forth, spreading terror and desolation around, is now arrested in its progress, or strangled in its birth; and, it is not too much to assert, that the general healthiness of the metropolis, and the less frequent recurrence of contagious disorders, are to be in a great measure attributed to their early suppression in the abodes of poverty, by the activity and vigilance of the medical officers of dispensaries. It is also apparent, that, without the medical assistance thus afforded the poor, the demand on parochial rates would be increased in a very considerable degree, and the medical establishments of every parish would be increased to double their ordinary expenditure.

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* See two Reports, intended to promote the establishment of a Lock Hospital in Manchester, in the year 1774, inserted in the author's Essays Medical, Philosophical, and Experimental. Vol. II. p. 263. 4th Edit.

But it is quite contrary to the objects for which hospitals and dispensaries are founded, to render them subservient to those in affluent circumstances; an abuse which exists in every one of them. This is an imposition on charity, and a direct injury to the profession; yet the medical officers cannot prevent it. It is a fact which cannot be controverted, that a large proportion of the patients admitted into the hospitals (especially of this metropolis), and relieved at dispensaries, are not real objects of charity, and are often the relatives, or personal friends, or servants, of the governors or subscribers;

and thus the junior members of the profession are seriously injured. This abuse exists in every part of the empire, but to a vast extent in this metropolis. I have often remonstrated with my colleagues, and with governors, on this impropriety; but their reply was ready—"These things are tolerated in every public institution."

It has been a maxim with the faculty, that a practitioner of *standing*, a senior, should be called over the ordinary attendant. This rule is often violated, and indeed it is not an easy matter to observe it on many occasions. The late eminent Dr. James Gregory, of Edinburgh, has commented with his usual force on this point. He says, "but mere *standing*, or seniority, superadded to the most complete and regular education in the profession, will neither procure confidence from the public, nor success and employment to any person. We are well accustomed to see many juniors surpass, and most deservedly surpass their seniors, perhaps even their own instructors; and leave them so far behind, that, before half their race is run, they can have no farther hopes of success.

"Some individuals soon shew by their talents, and the use which they make of them, that they can profit more by seven years of observation and experience, than others could do in the longest life. And very many soon show that they are incapable of ever improving; from a real natural want of those faculties which would enable them to observe accurately, to compare different observations together, to reason acutely and fairly, and ultimately to draw just and useful practical inferences from what they had observed. Many, not naturally deficient in their intellectual powers, become so from defects or improprieties in their education; especially the want of that general preliminary education, which improves the faculties, while it extends the sphere of knowledge, and directs the attention to proper objects. And many more, who have no such excuse either from natural or accidental defects, never improve, and soon show that they never will, purely by their own fault. They think the knowledge or improvement they had acquired, when they first entered on the exercise of their profession, sufficient for all purposes, or, at least, for their purpose; they find the effort of attention in observing, comparing, reading, and thinking, too laborious; and, as they flatter themselves it is unnecessary for them, they soon cease to make it.

"Of course, all chance of improvement in them is at an end; they grow older, and yet grow never the better or wiser. On the contrary, as they often become more negligent, they grow worse in every respect, and really become more ignorant, forasmuch as they acquire no new knowledge, and forget much of what they had formerly learned.

"They become a kind of drones, content to do their business in a humdrum workman-like sort of a way; by which they have the best chance of escaping reflections or censure. Their faults are much more frequently sins of omission than of commission. For once that they do any thing positively and immediately pernicious, they miss, from negligence or ignorance, or both, an hundred opportunities of doing good. None but those in the secret have any notion how faithfully many physicians and surgeons go on for thirty or forty years, or longer, if they live longer, employing, even in the commonest diseases, the remedies which they were taught when young, though useless at best, if not pernicious; how faithfully many great and grave writers have transcribed from their predecessors, from generation to generation, the same frivolous, absurd, or dangerous precepts, the same useless or pernicious prescriptions, and the same silly remarks; how tenaciously many practitioners adhere to old recipes, so extravagantly absurd as to contain perhaps fifty or a hundred ingredients, of which probably not more than three or four are of any use; and how manfully they fight against the introduction of other remedies, the most simple, powerful, and safe; which they reprobate, and will not employ, for no other reason but because they are new.

"Men of such talents, characters, and habits, whether physicians or surgeons, can neither improve by experience themselves, nor contribute to the instruction of others, and the improvement of their art. They are peculiarly unfit to practise in an hospital, where, on account of the great number and urgency of the cases to be treated, the greatest extent and accuracy of knowledge, the greatest quickness, precision, and discrimination in applying it; and, in one word, the greatest effort of attention and thought is required. Any deficiences in them, which in private practice might well have escaped observation and censure, must soon become conspicuous on so public a stage; just like those of a lawyer at the bar; and will not only bring on themselves reproach and contempt, but will in some measure affect the character of the hospital itself. Whatever lessens the confidence of the public in the administration of it, and of the patients who resort to it in the skill of those to whose care their health and lives are entrusted, tends strongly to frustrate the benevolent purpose of the institution, and is, in truth, a very great injury to the public. Some men, naturally of good sense and quick discernment, and active, vigorous minds, who attend accurately to what passes around them, are distinguished even at an early period of life for sagacity, prudence, decision, and quickness in conduct, and a thorough knowledge of the characters of men, and the management of business. They are accordingly respected in the world, and often consulted on nice and difficult occasions by those who are acquainted with them, and who very wisely rely more on the judgment of such men than they would do on their own.

"But such men are not the majority of mankind. An infinitely greater number are either so deficient in natural talents, or so culpably negligent in the use they make of them, that they appear to acquire no improvement at all by their experience of men and things. At the age of fifty or sixty, they are a good deal more dull, but not a jot wiser, than they were at twenty-five or thirty. They become as arrant drones in common life as any are in law, or physic, or surgery. No man of sense, who knows them, would ever think of consulting them, or relying on their judgment, in any business whatever, any more than he would think of consulting a lawyer when he was sick, or a physician when he was engaged in a law-suit.

"A man of such a character can never deserve respect, or confidence, or employment, even in his own profession: and there are many such in law, in physic, in surgery, and in all the employments of life."

It must be unnecessary to enter into serious proofs of the importance of consultations. The mere want of medical assistance, says the distinguished physician whom I have just quoted, is in many cases so bad, as to imply almost certainly very pernicious, if not fatal consequences. In such cases, to withhold it voluntarily would be almost as criminal as to suffer a wretch to perish by withholding food from him. This point being proved, a few words may be said on the utility of numerous consultations. The opinion of Dr. James G. is so excellent upon this topic, that it must be quoted. "With respect to physicians and surgeons both, and their patients, it is plain that all the good that can be expected from a consultation may be obtained from one of two, or three, or four, at the utmost, at least as well as from one ten times as numerous; and I should think it almost as plain, that much of that good may be prevented, and much positive evil done, by a very numerous consultation.

"On this point I presume, without vanity, to know as much as most men. For full half of my life, I have been a professor of physic in the University of Edinburgh, during which time consultations have been a great part of my business, to the number certainly of some thousands. Nineteen times out of twenty, at least, I have been the youngest physician of the consultation; and, of course, when any written directions were to be given to the patient, have had the honour to put them in writing, to the number, I presume, of two or three hundred at least. I can say with confidence, in point of fact, that I never knew any good come of a very numerous consultation; and I doubt much, whether any physician or surgeon of competent experience will give a different account of the result of what he has observed. The conduct of physicians and surgeons, when themselves or any of their families are sick, affords a still better proof and illustration of the same truth, and is indeed supreme and decisive authority with respect to what is useful, or what is useless, or worse than useless, in medical consultations. With us all considerations of economy are out of the question. Bad as we may be thought, we are not such cannibals as to prey on one another. We may all have, for nothing, to ourselves and our families, as much assistance in point of physic and surgery as we choose. We feel strongly, that we have not sufficient calmness and firmness to judge and act properly, when the lives of those are at stake in whom we are most tenderly interested: and, as to ourselves when sick, we all know, for it is a long settled point in physic, that every man who doctors himself has a fool for his patient.

"For these reasons, we are all accustomed, when ourselves or our families are sick, to ask the assistance, not of all, but of some of our professional brethren. A numerous consultation is a kind of debating society, in which the patient's welfare, which ought to be the only object in view, is nearly forgotten. The illustrations of such consultations by Moliere, Le Sage, Fielding, and many others, were just, though inapplicable at present. In former times the *odium medicum* was as violent as the *odium theologicum*, even matters went so far that the disputants resorted to arms; but there is little danger of modern theorists taking the field in support of their opinions, though they war with words fully as bitterly as their predecessors."—*Op. Cit.*

SECTION II.

Of professional conduct in private or general practice.

I. The moral rules of conduct, prescribed towards hospital patients, should be fully adopted in private or general practice. Every case, committed to the charge of a physician or surgeon, should be treated with attention, steadiness, and humanity: reasonable indulgence should be granted to the mental imbecility and caprices of the sick: secrecy and delicacy, when required by peculiar circumstances, should be strictly observed. And the familiar and confidential intercourse, to which the faculty are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honour.

II. The strictest temperance should be deemed incumbent on the faculty; as the practice both of physic and surgery at all times requires the exercise of a clear and vigorous understanding: and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head, may be essential to the well-being, and even to the life, of a fellow-creature.

III. A physician should not be forward to make gloomy prognostications; because they savour of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient, timely notice of danger, when it really occurs, and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming, when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick, that by such cordials to the drooping spirit, he may smooth the bed of death; revive expiring life; and counteract the depressing influence of those maladies, which rob the philosopher of fortitude, and the Christian of consolation.

IV. Officious interference, in a case under the charge of another, should be carefully avoided. No meddling inquiries should be made concerning the patient; no unnecessary hints given, relative to the nature or treatment of his disorder; nor any selfish conduct pursued, that may directly or indirectly tend to diminish the trust reposed in the physician or surgeon employed. Yet though the character of a professional busybody, whether from thoughtlessness or craft, is highly reprehensible, there are occasions which not only justify but require a spirited interposition. When artful ignorance grossly imposes on credulity; when neglect puts to hazard an important life; or rashness threatens it with still more imminent danger; a medical neighbour, friend, or relative, apprized of such facts, will justly regard his interference as a duty. But he ought to be careful, that the information on which he acts, is well founded; that his motives are pure and honourable; and that his judgment of the measures pursued is built on experience and practical knowledge, not on speculative or theoretical differences of opinion. The particular circumstances of the case will suggest the most proper mode of conduct. In general, however, a personal and confidential application to the gentlemen of the faculty concerned, should be the first step taken, and afterwards, if necessary, the transaction may be communicated to the patient or to his family.

V. When a physician or surgeon is called to a patient, who has been before under the care of another gentleman of the faculty, a consultation with him should be even proposed, though he may have discontinued his visits: his practice, also, should be treated with candour, and justified, so far as probity and truth will permit. For the want of success in the primary treatment of a case is no impeachment of professional skill or knowledge; and it often serves to throw light on the nature of a disease, and to suggest to the subsequent practitioner more appropriate means of relief.

VI. In large and opulent towns, the distinction between the provinces of physic and surgery should be steadily maintained. This distinction is sanctioned both by reason and experience. It is founded on the nature and objects of the two professions; on the education and acquirements requisite for their most beneficial and honourable exercise; and tends to promote the complete cultivation and advancement of each. For the division of skill and labour is no less advantageous in the liberal than in the mechanic arts: and both physic and surgery are so comprehensive, and yet so far from perfection, as separately to give full scope to the industry and genius of their respective professors. Experience has fully evinced the benefits of the discrimination recommended, which is established in every well regulated hospital, and is thus expressly authorized by the faculty themselves, and by those who have the best opportunities of judging of the proper application of the healing art. No physician or surgeon, therefore, should adopt more than one denomination, or assume any rank or privileges different from those of his order.*

VII. Consultations should be promoted, in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice. On such occasions no rivalship or jealousy should be indulged: candour, probity, and all due respect should be exercised towards the physician or surgeon first engaged; and as he may be presumed to be best acquainted with the patient and with his family, he should deliver all the medical directions agreed upon, though he may not have precedency in seniority or rank. It should be the province, however, of the senior physician, first to propose the necessary questions to the sick, but without excluding his associate from the privilege of making farther inquiries, to satisfy himself, or to elucidate the case.

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* This rule is right, though seldom observed. In London all the surgeons act as physicians, and also throughout the British dominions.

VIII. As circumstances sometimes occur to render a special consultation desirable, when the continued attendance of another physician or surgeon might be objectionable to the patient, the gentleman of the faculty whose assistance is required, in such cases, should pay only two or three visits; and sedulously guard against all future unsolicited interference. For this consultation a double gratuity may reasonably be expected from the patient, as it will be found to require an extraordinary portion both of time and attention.

In medical practice, it is not an unfrequent occurrence, that a physician is hastily summoned, through the anxiety of the family, or the solicitation of friends, to visit a patient, who is under the regular direction of another physician, to whom notice of this call has not been given. Under such circumstances, no change in the treatment of the sick person should be made, till a previous consultation with the stated physician has taken place, unless the lateness of the hour precludes meeting, or the symptoms of the case are too pressing to admit of delay.

IX. Theoretical discussions should be avoided in consultations, as occasioning perplexity and loss of time. For there may be much diversity of opinion, concerning speculative points, with perfect agreement in those modes of practice, which are founded not on hypothesis, but on experience and observation.

X. The rules prescribed for hospital consultations, may be adopted in private or general practice.* And the seniority of a physician may be determined by the period of his public and acknowledged practice as a physician, and that of a surgeon by the period of his practice as a surgeon, in the place where each resides. This arrangement, being clear and obvious, is adapted to remove all grounds of dispute amongst medical gentlemen: and it secures the regular continuance of the order of precedency, established in every town, which might otherwise be liable to troublesome interruptions by new settlers, perhaps not long stationary.*

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* See rules xix. xx. xxi. pp. 80, 81.

XI. A regular academical education furnishes the only presumptive evidence of professional ability, and is so honourable and beneficial, that it gives a just claim to pre-eminence among physicians, in proportion to the degree in which it has been enjoyed and improved: yet, as it is not indispensably necessary to the attainment of knowledge, skill, and experience, they who have really acquired, in a competent measure, such qualifications, without its advantages, should not be fastidiously excluded from the privileges of fellowship. In consultations, especially, as the good of the patient is the sole object in view, and is often dependent on personal confidence, the aid of an intelligent practitioner ought to be received with candour and politeness, and his advice adopted, if agreeable to sound judgment and truth.

XII. Punctuality should be observed in the visits of the faculty, when they are to hold consultation together. But as this may not always be practicable, the physician or surgeon, who first arrives at the place of appointment, should wait five minutes for his associate, before his introduction to the patient, that the unnecessary repetition of questions may be avoided: no visits should be made but in concert, or by mutual agreement: no statement or discussion of the case should take place before the patient or his friends, except in the presence of each of the attending gentlemen of the faculty, and by common consent; and no prognostications should be delivered, which are not the result of previous deliberation and concurrence.

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* Seniority is, in general, determined by the date of admission into the respective colleges. An individual, who is not a physician or surgeon according to law, may be the oldest resident, but does not belong to the profession.

XIII. Visits to the sick should not be unseasonably repeated; because, when too frequent, they tend to diminish the authority of the physician, to produce instability in his practice, and to give rise to such occasional indulgences, as are subversive of all medical regimen.

Sir William Temple has asserted, that "an honest physician is excused for leaving his patient, when he finds the disease growing desperate, and can, by his attendance, expect only to receive his fees, without any hopes or appearance of deserving them." But this allegation is not well founded: for the offices of a physician may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by obviating despair, by alleviating pain, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacrificing, to fanciful delicacy and mistaken liberality, that moral duty which is independent of, and far superior to all pecuniary appreciation.

XIV. Whenever a physician or surgeon officiates for another who is sick or absent, during any considerable length of time, he should receive the fees accruing from such additional practice; but if this fraternal act be of short duration, it should be gratuitously performed, with an observance always of the utmost delicacy towards the interest and character of the professional gentleman, previously connected with the family.

XV. Some general rule should be adopted by the faculty, in every town, relative to the pecuniary acknowledgments of their patients; and it should be deemed a point of honour to adhere to this rule, with as much steadiness, as varying circumstances will admit. For it is obvious, that an average fee, as suited to the general rank of patients, must be an inadequate gratuity from the rich, who often require attendance not absolutely necessary; and yet too large to be expected from that class of citizens, who would feel a reluctance in calling for assistance, without making some decent and satisfactory retribution.

But in the consideration of fees, let it ever be remembered, that though mean ones from the affluent are both unjust and degrading, yet the characteristic beneficence of the profession is inconsistent with sordid views, and avaricious rapacity. To a young physician, it is of great importance to have clear and definite ideas of the ends of his profession; of the means for their attainment; and of the comparative value and dignity of each. Wealth, rank, and independence, with all the benefits resulting from them, are the primary ends which he holds in view; and they are interesting, wise, and laudable. But knowledge, benevolence, and active virtue, the means to be adopted in their acquisition, are of still higher estimation. And he has the privilege and felicity of practising an art, even more intrinsically excellent in its mediate than its ultimate objects. The former, therefore, have a claim to uniform pre-eminence.

XVI. All members of the profession, including apothecaries as well as physicians and surgeons, together with their wives and children, should be attended gratuitously by any one or more of the faculty, residing near them, whose assistance may be required. For as solicitude obscures the judgment, and is accompanied with timidity and irresolution, medical men, under the pressure of sickness, either as affecting themselves or their families, are peculiarly dependent upon each other. But visits should not be obtruded officiously, as such unasked civility may give rise to embarrassment, or interfere with that choice, on which confidence depends. Distant members of the faculty, when they request attendance, should be expected to defray the charges of travelling. And if their circumstances be affluent, a pecuniary acknowledgment should not be declined; for no obligation ought to be imposed, which the party would rather compensate than contract.

XVII. When a physician attends the wife or child of a member of the faculty, or any person very nearly connected with him, he should manifest peculiar attention to his opinions, and tenderness even to his prejudices. For the dear and important interests which the one has at stake supersede every consideration of rank or seniority in the other; since the mind of a husband, a father, or a friend, may receive a deep and lasting wound, if the disease terminate fatally, from the adoption of means he could not approve, or the rejection of those he wished to be tried. Under such delicate circumstances, however, a conscientious physician will not lightly sacrifice his judgment; but will urge, with proper confidence, the measures he deems to be expedient, before he leaves the final decision concerning them to his more responsible coadjutor.

XVIII. Clergymen, who experience the *res angustæ domi*, should be visited gratuitously by the faculty. And this exemption should be an acknowledged general rule, that the feeling of individual obligation may be rendered less oppressive. But such of the clergy as are qualified, either from their stipends or fortunes, to make a reasonable remuneration for medical attendance, are not more privileged than any other order of patients. Military or naval subaltern officers, in narrow circumstances, are also proper subjects of professional liberality.

XIX. As the first consultation by letter imposes much more trouble and attention than a personal visit, it is reasonable, on such an occasion, to expect a gratuity of double the usual amount. And this has long been the established practice of many respectable physicians. But a subsequent epistolary correspondence, on the further treatment of the same disorder, may justly be regarded in the light of ordinary attendance, and may be compensated, as such, according to the circumstances of the case, or of the patient.

XX. Physicians and surgeons are occasionally requested to furnish certificates, justifying the absence of persons who hold situations of honour and trust in the army, the navy, or the civil departments of government. These testimonials, unless under particular circumstances, should be considered as acts due to the public, and therefore not to be compensated by any gratuity. But they should never be given without an accurate and faithful scrutiny into the case; that truth and probity may not be violated, nor the good of the community injured, by the unjust pretences of its servants. The same conduct is to be observed by medical practitioners when they are solicited to furnish apologies for non-attendance on juries; or to state the valetudinary incapacity of persons appointed to execute the business of constables, churchwardens, or overseers of the poor. No fear of giving umbrage, no view to present or future emolument, nor any motives of friendship, should incite to a false, or even dubious declaration. For the general weal requires that every individual, who is properly qualified, should deem himself obliged to execute, when legally called upon, the juridical and municipal employments of the body politic. And to be accessory, by untruth or prevarication, to the evasion of this duty, is at once a high misdemeanour against social order, and a breach of moral and professional honour.

XXI. The use of quack medicines should be discouraged by the faculty, as disgraceful to the profession, injurious to health, and often destructive even of life. Patients, however, under lingering disorders, are sometimes obstinately bent on having recourse to such as they see advertized, or hear recommended, with a boldness and confidence which no intelligent physician dares to adopt with respect to the means that he prescribes. In these cases some indulgence seems to be required to a credulity that is insurmountable. And the patient should neither incur the displeasure of the physician, nor be entirely deserted by him. He may be apprized of the fallacy of his expectations, whilst assured, at the same time, that diligent attention should be paid to the process of the experiment he is so unadvisedly making on himself, and the consequent mischiefs, if any, obviated as timely as possible. Certain active preparations, the nature, composition, and effects of which are known, ought not to be proscribed as quack medicines.

No physician or surgeon should dispense a secret nostrum, whether it be his invention, or exclusive property. For if it be of real efficacy, the concealment of it is inconsistent with beneficence and professional liberality. And, if mystery alone give it value and importance, such craft implies either disgraceful ignorance, or fraudulent avarice.

The *Esprit du Corps* is a principle of action founded in human nature, and when duly regulated, is both rational and laudable. Every man who enters into a fraternity engages, by a tacit compact, not only to submit to the laws, but to promote the honour and interest of the association, so far as they are consistent with morality and the general good of mankind. A physician therefore, should cautiously guard against whatever may injure the general respectability of his profession; and should avoid all contumelious representations of the faculty at large; all general charges against their selfishness or improbity; and the indulgence of an affected jocularity or scepticism, concerning the efficacy and utility of the healing art.

As diversity of opinion and opposition of interest may in the medical, as in other professions, sometimes occasion controversy, and even contention; whenever such cases unfortunately occur, and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or of surgeons, according to the nature of the dispute; or to the two orders collectively, if belonging both to medicine and surgery. But neither the subject-matter of such references, nor the adjudication, should be communicated to the public; as they may be personally injurious to the individuals concerned, and can hardly fail to hurt the general credit of the faculty.

A wealthy physician or surgeon should not give advice gratis to the affluent; because it is an injury to his professional brethren. The office of a physician can never be supported but as a lucrative one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with which might justly be claimed.

It frequently happens, that a physician, in his incidental communications with the patients of other physicians, or with their friends, may have their cases stated to him in so direct a manner as not to admit of his declining to pay attention to them. Under such circumstances, his observations should be delivered with the most delicate propriety and reserve. He should not interfere in the curative plans pursued; and should even recommend a steady adherence to them, if they appear to merit approbation.

A physician, when visiting a sick person in the country, may be desired to see a neighbouring patient, who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued, on such an occasion, is to give advice adapted to present circumstances; to interfere no farther than is absolutely necessary with the general plan of treatment; to assume no future direction, unless it be expressly desired; and, in this case, to request an immediate consultation with the practitioner antecedently employed.

At the close of every interesting and important case, especially when it hath terminated fatally, a physician should trace back, in calm reflection, all the steps which he had taken in the treatment of it. This review of the origin, progress, and conclusion of the malady; of the whole curative plan pursued; and of the particular operation of the several remedies employed, as well as of the doses and periods of time in which they were administered, will furnish the most authentic documents on which individual experience can be formed. But it is in a moral view that the practice is here recommended, and it should be performed with the most scrupulous impartiality. Let no self-deception be permitted in the retrospect; and if errors, either of omission or commission, are discovered, it behoves that they should be brought fairly and fully to the mental view. Regrets may follow, but criminality will thus be obviated. For good intentions, and the imperfection of human skill, which cannot anticipate the knowledge that events alone disclose, will sufficiently justify what is past, provided the failure be made conscientiously subservient to future wisdom and rectitude in professional conduct.

The opportunities which a physician not unfrequently enjoys, of promoting and strengthening the good resolutions of his patients, suffering under the consequences of vicious conduct, ought never to be neglected. And his counsels, or even remonstrances, will give satisfaction, not disgust, if they be conducted with politeness; and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

The observance of the sabbath is a duty to which medical men are bound, so far as is compatible with the urgency of the cases under their charge. Visits may often be made with sufficient convenience and benefit, either before the hours of going to church, or during the intervals of public worship. And in many chronic ailments, the sick, together with their attendants, are qualified to participate in the social offices of religion; and should not be induced to forego this important privilege, by the expectation of a call from their physician or surgeon.

A physician who is advancing in years, yet unconscious of any decay in his faculties, may occasionally experience some change in the wonted confidence of his friends. Patients who before trusted solely to his care and skill, may now request that he will join in consultation, perhaps with a younger coadjutor. It behoves him to admit this change without dissatisfaction or fastidiousness, regarding it as no mark of disrespect; but as the exercise of a just and reasonable privilege in those by whom he is employed. The junior practitioner may well be supposed to have more ardour than he possesses in the treatment of diseases; to be bolder in the exhibition of new medicines, and disposed to administer old ones in doses of greater efficacy. And this union of enterprize with caution, and of fervour with coolness, may promote the successful management of a difficult and protracted case. Let the medical parties, therefore, be studious to conduct themselves towards each other with candour and impartiality; co-operating by mutual concessions in the benevolent discharge of professional duty.

The commencement of that period of senescence when it becomes incumbent on a physician to decline the offices of his profession it is not easy to ascertain; and the decision on so nice a point must be left to the moral discretion of the individual. For one grown old in the useful and honourable exercise of the healing art may continue to enjoy, and justly to enjoy, the unabated confidence of the public. And whilst exempt, in a considerable degree, from the privations and infirmities of age, he is under indispensable obligations to apply his knowledge and experience in the most efficient way to the benefit of mankind. For the possession of powers is a clear indication of the will of our Creator concerning their practical direction. But, in the ordinary course of nature, the bodily and mental vigour must be expected to decay progressively, though perhaps slowly, after the meridian of life is past. As age advances, therefore, a physician should, from time to time, scrutinize impartially the state of his faculties, that he may determine, *bona fide,* the precise degree in which he is qualified to execute the active and multifarious offices of his profession. And whenever he becomes conscious that his memory presents to him with faintness those analogies on which medical reasoning and the treatment of diseases are founded; that diffidence of the measures to be pursued perplexes his judgment; that, from a deficiency in the acuteness of his senses, he finds himself less able to distinguish signs, or to prognosticate events; he should at once resolve, though others perceive not the changes which have taken place, to sacrifice every consideration of fame or fortune, and to retire from the engagements of business. To the surgeon under similar circumstances this rule of conduct is still more necessary. For the energy of the understanding often subsists much longer than the quickness of eye-sight, delicacy of touch, and steadiness of hand, which are essential to the skilful performance of operations. Let both the physician and surgeon never forget, that their professions are public trusts, properly rendered lucrative whilst they fulfil them; but which they are bound, by honour and probity, to relinquish as soon as they find themselves unequal to their adequate and faithful execution.

SECTION III.

Of the Conduct of Physicians towards Apothecaries.

In the present state of physic, in this country, where the profession is properly divided into three distinct branches, a connection peculiarly intimate subsists between the physician and the apothecary; and various obligations necessarily result from it. On the knowledge, skill, and fidelity of the apothecary depend, in a very considerable degree, the reputation, the success, and usefulness of the physician. As these qualities, therefore, justly claim his attention and encouragement, the possessor of them merits his respect and patronage.

The apothecary is, in almost every instance, the precursor of the physician; and being acquainted with the rise and progress of the disease, with the hereditary constitution, habits, and disposition of the patient, he may furnish very important information. It is in general, therefore, expedient, and when health or life are at stake expediency becomes a moral duty, to confer with the apothecary before any decisive plan of treatment is adopted; to hear his account of the malady, of the remedies which have been administered, of the effects produced by them, and of his whole experience concerning the juvantia and lædentia in the case. Nor should the future attendance of the apothecary be superseded by the physician: for if he be a man of honour, judgment, and propriety of behaviour, he will be a most valuable auxiliary through the whole course of the disorder, by his attention to varying symptoms; by the enforcement of medical directions; by obviating misapprehensions in the patient, or his family; by strengthening the authority of the physician; and by being at all times an easy and friendly medium of communication. To subserve these important purposes, the physician should occasionally make his visits in conjunction with the apothecary, and regulate by circumstances the frequency of such interviews: for if they be often repeated, little substantial aid can be expected from the apothecary, because he will have no intelligence to offer which does not fall under the observation of the physician himself; nor any opportunity of executing his peculiar trust, without becoming burthensome to the patient by multiplied calls, and unseasonable assiduity.

This amicable intercourse and co-operation of the physician and apothecary, if conducted with the decorum and attention to etiquette, which should always be steadily observed by professional men, will add to the authority of the one, to the respectability of the other, and to the usefulness of both. The patient will find himself the object of watchful and unremitting care, and will experience that he is connected with his physician, not only personally, but by a sedulous representative and coadjutor. The apothecary will regard the free communication of the physician as a privilege and mean of improvement; he will have a deeper interest in the success of the curative plans pursued; and his honour and reputation will be directly involved in the purity and excellence of the medicines dispensed, and in the skill and care with which they are compounded.

The duty and responsibility of the physician, however, are so intimately connected with these points, that no dependence on the probity of the apothecary should prevent the occasional inspection of the drugs, which he prescribes. In London, the law not only authorizes, but enjoins a stated examination of the simple and compound medicines kept in the shops. And the policy that is just and reasonable in the metropolis, must be proportionally so in every provincial town throughout the kingdom. Nor will any respectable apothecary object to this necessary office, when performed with delicacy, and at seasonable times; since his reputation and emolument will be increased by it, probable in the exact ratio, thus ascertained, of professional merit and integrity.

A physician called to visit a patient in the country, should not only be minute in his directions, but should communicate to the apothecary the particular view, which he takes of the case; that the indications of cure may be afterwards pursued with precision and steadiness; and that the apothecary may use the discretionary power committed to him, with as little deviation as possible from the general plan prescribed. To so valuable a class of men as the country apothecaries, great attention and respect is due. And as they are the guardians of health through large districts, no opportunities should be neglected of promoting their improvement, or contributing to their stock of knowledge, either by the loan of books, the direction of their studies, or by unreserved information on medical subjects. When such occasions present themselves, the maxim of our judicious poet, is strictly true, "the worst avarice is that of sense." For practical improvements usually originate in towns, and often remain unknown or disregarded in situations, where gentlemen of the faculty have little intercourse, and where sufficient authority is wanting to sanction innovation.

It has been observed, by a political and moral writer of great authority, that "apothecaries' profit is become a bye-word, denoting something uncommonly extravagant. This great apparent profit, however, is frequently no more than the reasonable wages of labour. The skill of an apothecary, is a much nicer and more delicate matter than that of any artificer whatever; and the trust which is reposed in him is of much greater importance. He is the physician of the poor in all cases, and of the rich when the distress or danger is not very great. His reward, therefore, ought to be suitable to his skill and his trust, and it arises generally from the price at which he sells his drugs. But the whole drugs which the best employed apothecary, in a large market town, will sell in a year, may not, perhaps, cost him above thirty or forty pounds. Though he should sell them, therefore, for three or four hundred, or a thousand per cent profit, this may frequently be no more than the reasonable wages of his labour charged, in the only way in which he can charge them, upon the price of his drugs.

Physicians are sometimes requested to visit the patients of the apothecary, in his absence. Compliance, in such cases, should always be refused, when likely to interfere with the consultation of the medical man usually employed by the sick person, or his family. It would be for the interest and honour of the faculty to have this practice altogether interdicted. Physicians are the only proper substitutes for physicians; surgeons for surgeons; and apothecaries for apothecaries.

When the aid of a physician is required, the apothecary to the family is frequently called upon to recommend one. It will then behove him to learn fully whether the patient or his friends have any preference or partiality; and this he ought to consult, if it lead not to an improper choice. For the maxim of Celsus is strictly applicable on such an occasion; Ubi par scientia, melior est amicus medicus quam extraneus. But if the parties concerned be entirely indifferent, the apothecary is bound to decide according to his best judgment, with a conscientious and exclusive regard to the good of the person, for whom he is commissioned to act. It is not even sufficient that he selects the person on whom, in sickness, he reposes his own trust; for in this case, friendship justly gives preponderancy; because it may be supposed to excite a degree of zeal and attention, which might overbalance superior science or abilities. Without any regard to any personal, family, or professional connections, he should recommend the physician whom he conscientiously believes, all circumstances considered, to be best qualified to accomplish the recovery of the patient.

In the county of Norfolk, and in the city of London, benevolent institutions have been lately formed, for providing funds to relieve the widows and children of apothecaries, and occasionally also members of the profession, who become indigent. Such schemes merit the sanction and encouragement of every liberal physician and surgeon. And were they thus extended, their usefulness would be greatly increased, and their permanency almost with certainty secured. Medical subscribers, from every part of Great Britain, should be admitted, if they offer satisfactory testimonials of their qualifications. One comprehensive establishment seems to be more eligible than many on a smaller scale. For it would be conducted with superior dignity, regularity, and efficiency; with fewer obstacles from interest, prejudice, or rivalship; with considerable saving in the aggregate of time, trouble, and expence; with more accuracy in the calculations, relative to its funds; and, consequently, with the utmost practicable extension of its dividends. Dr. Percival recommends the formation of district dispensaries, and, in an excellent pamphlet on the Farming of Parishes by surgeons, a practicable plan, now acted on in Warwickshire, for superseding that wretched mockery of medical aid, called "Parish Doctoring," by District Infirmaries, is suggested by Mr. H. L. Smith.

Mr. Phelan, of Clonmell, proposes to establish district infirmaries and dispensaries in Ireland, in the proportion of one to every 40,000 inhabitants, and that each ought to be attended by a physician, surgeon, and resident apothecary, as in the English hospitals and dispensaries. (On the Medical Charities of Ireland, 1835.)

The Commissioners of the New Poor Law Act of 1834, have divided several parishes into unions, and appoint the lowest medical bidders, however young and inexperienced, as medical officers. The average pay allowed is half-a-crown a head; but in cases of cholera, or other epidemics, the pay is only allowed for a certain number of sick, and the rest are to be attended for nothing! This Act must be amended speedily, as it is most injurious to the sick poor.

CHAPTER V.

AMERICAN MEDICAL ETHICS.

Professional Reputation.

The following description of professional reputation was published by Dr. Godman, Professor of Anatomy and Physiology in Rutger's Medical College in 1829, and is so graphic and admirable, that I am induced to copy it. This essay was read, by appointment, before the Philadelphia Medical Society, Feb. 8, 1826, and is extracted from a volume, intitled, "Addresses delivered on Various Occasions. By John D. Godman, M. D., &c.," and politely sent to me. It affords me much pleasure to place American Medical Ethics before British readers.

Our profession is coeval with the distresses and sufferings of the human race, and its respectability is as universal as the benefits it is capable of conferring, when rightly administered —those engaged in the discharge of its duties having always been tacitly considered by their fellow-men, as beings peculiarly set apart from the rest of mankind, and worthy of an estimation, not conceded to persons employed in merely secular affairs.* The real excellence and usefulness of our art—when worthily practised—has always tended to increase the confidence and admiration of the public; and, if medicine have not attained a degree of perfection and immunity from censure, equal to its venerable age and importance to society, this results from circumstances, which, however they may have injured, are entirely extrinsic to the profession.

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* "El medico, en fin, que *es medico*, es digno de grande estimacion, porque es el conducto por donde Dios embia à los enfermos vn bien tan precioso como la salud: es el instrumento de que vsa la mano de Dios para hazer el mayor de los bienes corporales, y es en la tierra como vna cosa soberana, que se anda haziendo vidas."—*Don Iuan de Zabalèta.*

Yet our useful and excellent science presents a great number of obstacles and difficulties to her votaries, which are only to be surmounted by well-directed and most persevering efforts. A mistake made in the outset, may exert its prejudicial influence on the whole of your subsequent course; therefore it is desirable, that your principles and views should be both early and correctly formed.

The members of our profession are subjected to many temptations from ambition, which are scarcely to be resisted. Few, perhaps none of us, are willing to look upon our art as a mere mode of obtaining subsistence, whatever be our situations. We hope to gain a reputation, or fame, by the exercise or improvement of it; and this is the unseen, but ever operative cause, which urges us forward in our variously deviating careers. This desire of fame—this hungering after the approbation of the wise and good of our species—this wish to be singled out and placed above the great mass of our fellow-creatures—is a perfectly natural feeling, and of kin to immortality. To this cause we are indebted for the noblest exertions of human genius; it was this feeling which incited all the great of former days to the actions which still live on the page of history;—and the same breath will continue to enkindle from their ashes, fires which shall warm, cherish, and enlighten, universal society.

There are two kinds of fame, between which it is necessary for you to know the distinctions. The first, and only excellent, is that which tempts the wise and good man to become *great;* whose influence is not only felt during the existence of the possessor, but leaves behind it a holy light, undimmed and undiminished by the lapse of ages. This fame is built upon the solid basis of usefulness, genuine worth, and high desert. Its growth is not rapid, but its maturity is perfect; at first, it is the applause of those who are emphatically called "the few;" it is not gained until many privations and toils have been endured; yet, like the ascending sun, it surely attains a meridian altitude, and disperses by the potency of its irradiations, all clouds which would obscure or intercept its brightness.

The other kind of fame, is "base, common, and popular."

It is never the result of great intellectual exertion—often it is produced by accident, and it frequently is awarded to great vice. At first, it may *appear* bright and dazzling; but this light is the phosphorescent gleam hovering over putrefying substances, compared with the intense, steady, and sun-like ray of that first mentioned. This second fame, is the clamorous plaudit of the deceived or ignorant crowd; it is sustained solely by the breath of the vulgar herd, and would sink for ever in a purer atmosphere.

The fame that you should desire to win, is that which rewards the exertions of generous and virtuous minds. But, you should not only feel the proper emulation—you must be aware of the best mode of attaining your object. Let the intellectual capacity be what it may, or the impulse of ambition never so strong, much time may be wasted in ill-directed and desultory efforts, without the proper training and preparation; even giant strength may be rendered worse than useless, for want of skill to direct its exertions.

A first requisite to your success, is a good education, concerning the best mode of gaining which, wise men have differed in opinion. As the great object is to enlarge the mind, stock it with images, and train it to habits of investigation and sound reasoning, "a classical education" may be stated, as of the various modes, one of the best adapted for the discipline and developement of the intellectual powers Of this education we consider the study of those languages, whence not only our technical phrases, but our mother tongue itself are derived, as a most essential and vitally important part.

In speaking thus, we are conscious of advancing an opinion directly opposed to notions which, of late, are becoming very general and fashionable. It is easier, however, to declaim against the ancient languages, than to learn and employ them; as to the indolent, it is far more agreeable to demolish a noble edifice, than to erect even a comfortable shed.

The correctness of the opinion we have advanced, is not supported by assertion merely: it will bear close examination—and equally resist the subtilties of sophistry, or the ruder shocks of ignorance. Other preparatory branches of education have their specific value: by the aid of mathematics, the mind is sobered, sharpened, subtilized—taught to abstract itself and become concentrated on a point: to reach out and grasp the almost inconceivable combinations of numbers, or the ineffable extensions of space. But it is with man that physicians have to do—in all his varieties—his excellence, his errors, and his sufferings; it is with the hidden springs of the passions and emotions of our race that we wish to become acquainted; it is with the defaced, not destroyed, image of the Creator, that we are to be continually engaged. We cannot comprehend man better, than by understanding the manner in which he communicates his sensations and wishes to those around him; learning from the context of his thoughts and modes of expression, the nature of the mind whence they spring; and having gained thus much, become better able to make ourselves and our profession more useful and acceptable.

We can neither acquire nor impart knowledge, without the use of words. These, however imperfect, are the signs of our ideas; hence, he who is acquiring a language—if taught aright—is, at the same time, accumulating a vast store of objects for the future exercise of his intellect, and is also forming habits of reflection and discrimination rarely to be attained in any other way.

Independent of other advantages, the language of Judea, Greece, and Rome, are particularly worthy of regard, as containing the most sublime exertions of genius—the most valuable body of truth—and, moreover, as being the fountains, whence the now widely flowing streams of knowledge gushed forth to animate and adorn the world, after the prolonged and dreary periods of its cheerless gloom. In the tongue first mentioned, we see language in its ancient and original form, venerable alike for its simplicity and force. By it are we instructed of the origin of our race, and the commencement of human society. In the Greek, we see language refined to the highest degree, and are furnished, through it, with models in almost every exercise of human intellect. It is not only the tongue by which the invaluable observations of the primitive father of our science are preserved; but we have also delivered to us, in the same language, the words of Him "who spoke as never man spake." In the Latin tongue, we have an inexhaustible storehouse of intellectual gratification; it is, moreover, the true language of science—the ideas attached to the words being fixed, and freed from the mutations to which a living language must always be subject—it is the key to a great number of living dialects, forms a large part of the body and substance of our own tongue, and constitutes, along with the Greek, almost the whole mass of the language consecrated to the use of our profession. Hence, those who enter upon the study of medicine without having learned either of these languages, necessarily meet with numerous difficulties, which the instructed have not to encounter; and, even with the most assiduous attention, a large amount of their professional reading must remain unintelligible.

Opposers of classical education object, that the time necessary for the acquisition of learning, might be more profitably employed, as if the student were not learning to think and judge correctly; at the same time, filling his mind with ideas, and becoming well versed in the history and characters of men. Let it be remembered, that any or all of these languages may be studied while the memory is vigorously retentive and the judgment unformed. The exercise afforded by such studies, developes every faculty of the mind; the memory is replete with words, and if the studies be correctly pursued, the mind becomes acquainted with the things to which they relate; the habit of patiently investigating, and understanding the philosophy of modes of expression, teaches proper care, and gives us greater skill in our own language; and the attention is awakened to its true value and meaning, which otherwise might be neglected from habit.*

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* In urging the importance and necessity of classical learning to those destined for the profession of medicine, it is no part of my intention to state, that the manner in which the languages are most generally taught is either the best or even the true one. It is but too common to ascribe the faults of teachers to the thing taught; to prejudge and condemn an unexplored region, because the ways leading thereto chance to be foul.

You may inquire how the acquisition of such knowledge is to assist *you* in becoming distinguished in your profession? The answer is easy; nothing is more essential to the success of a physician, than a facility of communicating his own sentiments, as well as of understanding the sentiments of those who consult him. He must approach persons of every rank in society, and commune with every variety of intellect. Possessing a well-grounded knowledge of language—fully acquainted with the true value and nature of his own, which is derived from various other tongues—he is always prepared; whether by speech or writing, he addresses those with whom he is concerned successfully, because he is sure of making his wishes or opinions plain and intelligible to all. Classic learning has another influence, not less powerful or beneficial, on the human mind. The books, which should be studied, continually present the most excellent sentiments and morals, conveyed in the most refined style; and the superiority of such refinement over coarseness and vulgarity, will imperceptibly lead the student to an habitual imitation of them. The virtues of the good and the wise, and the examples of the truly great, will invite to a similarity of behaviour; while the conduct of an elegant scholar, will be a perpetual recommendation to the intelligence and acquirements of the physician.

Every commender of the learning we have spoken of, exposes himself to the charge of being prejudiced, or having too much veneration for mere antiquity. Instead of attempting to disprove such an unfounded accusation, let us employ the words of a celebrated author on the same subject. "I have," says he, "a great reverence for posterity; nor do I think lightly of the learned men of the present day. There are many, I know, who adorn our age, who would have ornamented any period; yet among the whole number, I have not known one who did not cultivate and honour ancient learning, whose wisdom was not similar to that of the ancients, or who did not admire and observe their precepts; from which, in proportion as you depart, you wander from nature and truth."*

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* "Magna interim ducor Posteritatis reverentia: non ideo tamen minoris

Many of the younger members of the society now present, are, ere long, to receive the honours of the profession, as a testimonial of their diligence and faithfulness as students, and will then be preparing to take their stand among the guardians of the public health. The boisterous sea of the world is attended with comparatively few dangers, to those who have not trifled away their time, and who set forth under the guidance of correct principles. Though you know not in what haven you may ultimately cast anchor, the possession of a sound moral and professional education, will insure your safety through all the turbulence you may be exposed to, during your voyage.

The greatest evil to be guarded against, when you commence your efforts for professional distinction, is impatience and instability of purpose. It will be wrong in you to anticipate that business can, in any situation, immediately follow your annunciation of being ready to receive it, more especially, where you are to meet with competition from a member

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æstimo doctos viros qui hodie vivunt; multi sunt fateor, qui seculum nostrum exornant, qui priora potuissent exornare; in quibus tamen ne unum, quidem novi, qui non honoret et colat antiquos, cui non idem quod illis sapiat, aut qui eorum præcepta non observet; unde quantum aberraveris, tantum ab ipsa natura et veritate discesseris. [Neque verear confirmare, non esse difficilius sine luce oculis objecta perspicere, quam solidam laudem adipisci et ingenium excolere, aliis rationibus quam quas Græci et Romani nobis præscripserunt."]—AND. DACIER.

The following observations of the learned HARRIS, on this subject, may be offered in support of what Dacier has advanced above. "To be *competently* skilled in the ancient languages, is by no means a work of insuperable pains; the very progress itself is attended with delight, and resembles a journey through some pleasant country, where every mile we advance new charms arise. It is certainly as easy to be a scholar as a gamester, or many other characters equally illiberal and low. The same application, the same quantity of habit, will fit us for one as for the other. And as to those who tell us, with an air of seeming wisdom, that it is men, not books, we must study, to become knowing; this I have always remarked, from repeated experience, to be the common consolation and language of dunces. They shelter their ignorance under a few bright examples, whose transcendant abilities, without the common helps, have been sufficient, of themselves, to great and important ends But, alas! 'Decepit exemplar, vitiis imitabile.' "—HERMES.

of the profession already established. The first half-year of a young physician's residence in a strange place, is the most trying part of his probation; for, should he mistake fewness of calls for neglect of his merits, or suppose that he will never be employed, because he is not immediately preferred to another, he is in danger of becoming unsettled, restless, neglectful of his books, society, and acquaintances, thus sacrificing the very means of his eventual success. If, however, we recollect how much people are prejudiced by education and habit, we shall find no fault with them for not employing a stranger on his first arrival, neither should we suppose their prejudices to be immoveably fixed. A proper degree of patience, and an improvement of those opportunities that are every where presented of winning confidence, will, in no long time, yield us that opening, which is the great requisite to future profit and eminence. Wherever we attempt to establish ourselves—except under very extraordinary circumstances—some time must be passed in acquiring the confidence of those around us, by the recommendations of our friends, by our own deportment, and the event of such cases as may be incidentally thrown into our hands. However unimportant any such particulars of conduct may individually appear, they are of great moment collectively viewed; as every circumstance in the appearance, conversation, and character, of a newly-arrived physician, is of deep interest to those among whom he wishes to remain.

It will be unjustifiable to trust your success, in the slightest degree, to accident, because accident has occasionally given currency to men neither remarkable for education, talent, nor judgment. Accident *has*, at times, given a man of the highest merit an introduction to extensive business; but we must never forget, that accident cannot sustain our reputation, nor minister to our continued success. Our greatest care must be to acquire reputation by a diligent cultivation of our talents; though we should never neglect to improve any accidental success, in all honourable ways, to forward our professional views. If a character for skill and discernment be acquired suddenly, we must not attempt to increase it, by endeavouring to extend this reputation to the utmost stretch of possibility, but by displaying new instances of talent and intellectual strength, thus substantially augment our capital of fame. The fortuitous elevation of men destitute of true greatness of character, is almost universally followed by reverses, as sudden and severe as this elevation was great. This is frequently exemplified in the fate of those who have a great air-built reputation, and much verbal fame; who, instead of modestly refusing a part of the honours proffered them, and exerting themselves *to prove* that they are worthily praised, receive the whole as no more than their right, and leave their admirers in a short time to discover, that their extraordinary pretensions are unfounded, and that their reputation is nothing better than the gratuitous offering of ill-judging and partial friends.

Next to an acquaintance with the principles* of the profession, and correct moral feeling, the young physician should most rely on the exercise of what may be summed up by the word *manners*. This embraces his general intercourse with society; in which he should display that habitual ease and cheerfulness, which results from correct habits of thought and action, and that kind attention to the wishes, prejudices, and necessities of those he associates with, which shows that he possesses the most generous and elevated feelings. To be accessible and attentive, without familiarity or cringing—to be mild, gentle, and forbearing, without sinking into tame submissiveness—to be ever ready to act when called on, without being officious or intrusive—and to do full justice to all those with whom he is professionally concerned, will insure a physician a degree of public respect, that may at length amount almost to idolatry; filling every bosom with kindness towards him, and every mouth with his praise.

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* "I would not be understood, in what I have here said, or may have said elsewhere, to undervalue *experiment*, whose importance and utility I freely acknowledge in the many curious nostrums and choice receipts with which it has enriched the arts of life. Nay, I go further—I hold all justifiable practice in every kind of subject, to be founded in *experience*, which is no more than the results of many repeated experiments. But I must add, withal, that the man who acts from experience alone, though he acts ever so well, is but an empiric or quack; and that, not only in medicine, but in every other subject."—*Harris's Hermes*, 352.

The sagacious Lord Bacon has given a rule for increasing our knowledge, and insuring conversation with all sorts of persons, which is one of the best that could be devised, and one more positively conducive to popularity can scarcely be imagined. This is, to learn something from all persons, whatever is their occupation, when we chance to be with them; this is always to be accomplished by inciting them to speak of what they know. As every man is better acquainted with his own business than we can possibly be, by inducing him to converse on the subject, we not only gain some valuable ideas, but we win his regard by manifesting an interest in what so peculiarly interests him. By adopting this method of Lord Bacon's, you need never suffer from tedium in the company of unlettered men, nor need you in the slightest degree to descend from your place, while judiciously exciting their remarks. This is not merely applicable to your intercourse with persons of inferior standing in society; the most learned, refined, and accomplished men, are equally pleased to find, that their pursuits, avocations, and interests, are interesting to you. You may frequently induce such persons to display before you, a stock of knowledge which otherwise would have been withheld, and you will part mutually satisfied, instead of being in ignorance of, or prejudiced against each other.

This rule may be observed with the utmost sincerity, and without the slightest approach to the meanness of flattery. The information thus to be acquired, will, in general, be far more easy of attainment, as well as more valuable, than can be gathered from many books; and you will, at the same time, be forming a more profound acquaintance with human nature, and also gain friends. Kindness, uniformly produces kindness; confidence inspires confidence. If we examine ourselves, we shall find that we are as excitable in this way as others, for we never deliver our thoughts with more force and feeling, than when we reply to interrogations on subjects in which our minds are most deeply engaged.

In all your intercourse with society, as well as in all your thoughts and actions, cultivate an habitual tenderness of regard for TRUTH. By this, I would not pretend to warn you against the disgrace of falsehood ; but, that you should guard against a habit, which is almost as common as the human family is numerous, of suffering apparently harmless exaggerations to escape. Truth and falsehood, like light and darkness, are opposite extremes—the one is as excellent as the other is base. But there are a great many aberrations from truth, which the world does not consider to be absolutely false ; as there are many deviations from honesty, which, by a similar laxity, are not considered as positively dishonourable ? If my wishes could influence, you should begin your career with resolving to adhere to the full purity of truth, and the perfect honourablenesss of honesty; so that when the day of your success arrives, you may look back on the means by which it was attained, without breathing a sigh of regret, or suffering one blush of shame.*

Our profession has long been subjected to the charge of "envy, hatred, malice, and all uncharitableness," among its members; and unfortunately, too much of the charge is well-founded. We cannot at present enter into an investigation of the causes by which this state of things has been produced, although it does not affect the profession to the degree which persons commonly suppose. † To lessen this evil, and avoid meriting such an accusation, make it a rule never to speak of a professional rival, unless you can speak to his advantage; if he have merit, allow him the whole of it, and give your sentiments of his talents with the unaffected earnestness of truth. Do not imagine that your acknowledgment of his merits, will hide his defects, or obscure your own good qualities. Grant that he adopts a contrary course, speaks ill of you, or throws out insinuations intended to be prejudicial to your interests;—then is your triumph complete. Think you that men will not contrast his mean and soulless conduct, with your manly and honest candour? Think you that he will not more deeply condemn himself, by attempting to misrepresent you—that society will not visit his ungenerous conduct on his own head, while the profession silently spurn him from their confidence?

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* " Si rectam rationem sequens, id quod instat, agas diligenter, firmiter, æquo animo, neque instituto negotio alia admisceas, sed tuum genium sincerum conserves, perinde ac si jam is tibi dimittendus esset ; atque ita si perseveres nihil expectans, nihil fugiens sed eo quod in præsentia secundum naturam agis, et HEROICA in dictis VERITATE contentus ; bene vives."—MARCUS ANTONINUS.

† " Cierto que en parte merecen esta pena los buenos medicos, pues tienen parte de culpa de que *se admitan al vso de la medicina tantos hombres* que no eran bueuos para Albeitaries. ¿ Porque no avian de reparar mucho los medicos doctos, los de la primera classe *à quien està cometido el examen* de todos en las meritos de los que aprueban ? ¿ Cosa es tan sin precio la estimacion del arte ? ¿ Cosa es de tan poca importancia la salud de los hombres, que se pueda poner en las manos de vnos Echacantos ? En *faltando la estimacion à* LA FACULTAD, *falta vn motivo grande* para aprenderla."—DE ZABALETA.

Should you be eminently successful after others have failed, avoid pushing your triumph so far as to wound the feelings and outrage the pride of your less fortunate competitors. Your success is sufficient for you, and by judicious deportment, you may compel a man to respect, if he does not esteem, who might otherwise cherish against you, a spirit as stern as hate—as inexorable as the grave. If, after such success as we have alluded to, you hear of disparaging suggestions made against you, by one you have set aside or overshadowed, you are neither obliged to know, nor resent it;* you would owe it to the dignity of your own character, to recollect that some allowances are to be made for mortified feeling, as well as that no malicious insinuations can stand against the daily repetition of actions, which prove you exempt from a grovelling and miserably irritable disposition.

That you will not attain the professional elevation you desire, without struggling against hosts of difficulties, and encountering every degree of opposition, is most certain. It may be, that the iron grasp of poverty, for a considerable time, will impede your progress and enfeeble your efforts. Against rivalry and opposition, your armour of principles and determined perseverance will afford every security, and poverty itself may be made to minister to your success, by urging you to the display of your noblest powers.* Look at the men of talents who now lead the van of our profession, and are considered as its ornaments. Who are they? Men born to fortune and reared in the lap of luxury? No. Men who have been elevated by protection and patronage?—who have been favoured by circumstances, or raised by accident? No. They are, most frequently, those who have emerged from poverty, if not obscurity. Many of them have been nursed in sorrow, and baptized with tears;—they have protected and patronized themselves, until the great and powerful have become proud to rank as their friends; they have *made* the very circumstances, which superficial observers suppose to have been the *causes* of their elevation. It is the triumph of talent, of genius, to rise in proportion to the magnitude of difficulties; to trample the opposition of malignant mediocrity into the dust; and gaining its merited elevation, to raise the profession it has chosen to a corresponding degree of eminence.

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* "Ulciscendi optima ratio est, ne similis fias ejus qui injuriam fecit."—MAR. ANTON.

Since the commencement of the present session of the society, some of our young friends, who entered on the career with hopes as warm, and eyes as bright as ours, have been called away to the "narrow house," and their spirit-stirring bustle of youthful expectation, has been exchanged for the solemn quiet of the tomb.† While we sympathize with such as mourn over youth snatched away in its blooming—and warm hopes chilled by the icy hand of death; while we sorrow over the mental anguish of those, whose far distant parents were not permitted to minister to their last earthly wants, or receive their dying sighs—let us not forget to be thankful, that we are still spared to usefulness and virtue. Yet a little while, and the mighty ocean of oblivion will whelm us in its fathomless depths, sweeping away every trace of our existence. This is not matter of regret. All nature tends to one common point—disintegration and change of form;—the cloud-capped and tempest-braving mountains, towering in seemingly indestructible grandeur, are hourly yielding their atoms to the earth and the air. Virtue alone survives all change; the immortal mind bids defiance to the destructibility of matter.

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* "Tales excelsioris animi homines laborem ardua et obstantia quæque non metuunt non solum sed spernunt et pro nihilo habent. Hi, eo genere militiæ militant, quo, tanquam ad certissimam tendentes victoriam, nihil desperandum esse putant. Hos nihil deterrere potest, quantivis etiam periculi plenum; neque quicquam tam alte a natura positum esse arbitrantur, quin suam virtutem eo attingere posse certi sunt."—Reinwardt.

† Several had then recently died of small-pox.

Build then your monuments, imperishably, on the love of mankind, by sincerely devoting yourselves to the cause of humanity—to the honour of your profession and country—to the faithful service of your friends—to the humble worship of God: thus, the necessary evils of life will pass over you unheeded; and the inevitable shaft of death, while it stills for ever all mortal disquiets, shall be unable to disturb the serene and ecstatic composure of your intellectual being.

CHAPTER VI.

MEDICAL EDUCATION.

Degrees—Diplomas—Medical Appointments—Success—Reputation—Eminence—Moral and Physical Medicine—Art of Prescribing.

It is now universally admitted by all our medical institutions connected with education, that those intended for the study of the healing art should receive a good general and classical education. The professors of all our universities and medical schools, the examiners of all our colleges and apothecaries' societies, delivered their evidence in proof of this point, before Mr. Warburton's Parliamentary Committee on Medical Education and Practice, in the summer of 1834. All the witnesses proved that a knowledge of the Greek, Latin, English, French, German, and Italian languages; of mathematics, logic, moral philosophy, natural history and philosophy; in fine, that the course of general education required by the universities for degrees in arts, is indispensably necessary to those intended for the medical profession. This extensive course of preliminary instruction has long been required by the universities of all candidates for admission into the learned professions; and is now exacted by most of the colleges of surgeons, and societies of apothecaries, of those intended for the practice of medicine.

No class of men stand in so much need of extensive erudition and knowledge. They may attend all ranks of society from the lowest to the highest, and ought to be exceedingly well-informed in general as well as in medical literature.

A greater character for learning and science cannot exist than that which constitutes an accomplished physician; the most extensive study, and the most comprehensive mind, are therefore requisite. The youth intended for medicine should have all his senses acute, and in the utmost degree of perfection; because it is from the perceptibility of the senses alone, that the human mind is stored with all those sublime ideas which shine so conspicuously in the future life of a medical practitioner. When the senses are obtuse, dulness is the consequence; and a dull student never made a brilliant physician. The medical student should, therefore, have the clearest powers of perception, so as to receive accurate impressions, and possess tenacity in their retention.

He ought to have a good memory and great reflection. The intellectual faculties should be copiously enriched by indefatigable industry, and unceasing study; with the most extensive ideas of sensation and reflection; with memory, invention, and genius—so as to be capable of arranging a variety of ideas in strict logical order. When all demonstrative facts relating to our art are acquired, reflection, acute reasoning, and profound judgment, will decide the manner in which they are to be applied in the treatment of diseases. What a vast field of knowledge is comprehended in the medical sciences! How many days and years of labour and industry are required! What sedulous diligence is absolutely necessary! We must, therefore, pursue with an ambitious zeal the various branches of the medical and collateral sciences; we should study all, as all united form, with experience, the greatest medical characters.

"We set out in pursuit of professional distinction when the buoyancy of youth, and the vigour of imagination lift us over every impediment, and break down every barrier. Hope tints the distance with the most glowing and flattering colours, and the mind revels in delightful anticipations of pleasure, fortune, and renown. A moderate experience in the cold realities of life proves that we have been dreaming, and teaches that if these good things are ever to be realized it is only when years of patient endurance have elapsed, and after the fires of youth have been well nigh expended in the service of our fellow-creatures. Accident may sometimes realize the expectations of youth, but the most universal rule is, that wealth and fame from professional exertion is the slow, though sure reward of long labour and persevering industry. This circumstance is of the greatest advantage to society, and to our profession; but those who have yielded too much to the dominion of hope and fancy, are frequently so much affected by discovering the truth, as to suffer an entire revulsion of feeling, and sink from the most brilliant flights of imagination to the lowest depths of despair. This despondence is permitted sometimes to prey on the mind until it produces neglect of business or harsh misanthropy; and the unfortunate sufferer is continually tortured with notions of the ingratitude of mankind, the neglect of merit, the low state of professional character; while he is letting slip the best opportunities to convince himself of the contrary by efficiently performing those duties his profession enjoins, and society requires. Be then prepared to discover, that the world yields neither wealth nor distinction except as the price of industry and great deservings. Stop not to consider whether men are ungrateful or merit is neglected; but perform the actions that create a claim to their gratitude; declare your merits by the faithful discharge of your duties: and then you will find such complaint impossible.

"If such were not to be the result, policy would dictate the propriety of concealing our mortification. The voice of repining and discontent is ever painful and offensive to others; and the same persons who warmly sympathize with a noble spirit struggling against misfortune, and, though broken-hearted, looking calmly on the approach of inevitable fate, despise the creature who is continually vexing their ears with fruitless and peevish complaints, or venting selfish ejaculations against the characters of those who have lived beneath a brighter sky, or been wafted along by more propitious gales.

"Of this you may feel perfectly assured, that really meritorious conduct cannot go altogether unrewarded; neither can the fire of true genius be entirely smothered. The time must come when perseverance in the conscientious discharge of high duties will secure the remuneration and respect it is entitled to; the mind that has been wrought up by the study of proper objects, and is sustained by a determined enthusiasm, to effect great purposes, may for a time be weighed down by poverty or misfortune; but, like the giant of ancient fable, its struggles will convulse the superincumbent mass, and must eventually shake off every hindrance to perfect success.

"If, in offering these considerations to you on the present occasion, we appear diverging too far from the beaten track, we trust you will pardon the zeal that urges the laying before you, what reason and experience induce us to hope may be to your advantage. Being exclusively devoted to the service of those who are engaged in the study of medicine, we may be allowed in some degree to identify our feelings with theirs, and be anxious to spare them suffering, not less than to aid in insuring their success. Whatever defect there may be in manner, there is none in feeling; nor is there the slightest departure from fact in stating—

> 'For you, ye studious, I strive,
> For you, I tame my youth to philosophic cares,
> And grow still paler o'er the midnight lamp.' "*

We may, however, practise any one department suited to our taste or inclination; but we should study and know the whole. One practitioner prefers surgery, another obstetricy, a third aural, a fourth ophthalmic, a fifth dental surgery; others devote themselves to diseases of the brain and mind; some to maladies of the chest; more to those of the heart; many to disorders of the digestive system—stomach, intestines, liver, &c.; more to genito-urinary diseases; others to local affections—lithotrity, gout, &c. But every physician and surgeon should be conversant with the nature and treatment of every species of human disease. It is perfectly impossible to separate diseases into medical, surgical, and obstetrical; as any one disease, no matter what may be its situation, can and does derange and disorder all the organs and functions in the human body. Away, then, with the absurd and untenable distinctions of medicine, surgery, and obstetricy; the profession as a science, is one, and indivisible.

It is highly advantageous to the cultivator of the healing art, to visit different universities and schools, and to learn the principles and practice of medicine under the most celebrated professors. It is for this reason, that students who commence in London, repair to Edinburgh, Dublin, Paris, Vienna, or Pavia. When a man of superior merit is to be found in any part of the world, his fame has great influence on strangers, and remote countries send him disciples and admirers. Few are ignorant of the great afflux of students from many nations to the lectures of Boerhaave, Morgagni, Monro, Hunter, Frank, Cullen, Scarpa, Abernethy, Cooper, &c., &c. It has often been a great advantage to have studied under such masters; and, even in our own time, under an Abernethy, a Cooper, a Dupuytren, a Bell, a Colles, &c. Lucrative and important appointments have been given to the pupils of these eminent individuals. There is, however, a more independent spirit abroad in our day; and few are ready to swear by the word of a master. Moreover, the opinions of all eminent practitioners are generally published, and may be procured with the utmost facility. This incalculable improvement was effected by the medical periodical press, and is now general throughout the world. The periodical press publishes the lectures and opinions of the most celebrated and eminent practitioners of different countries, and presents them on such low terms that every student and practitioner may possess them. It saves a vast expense which would otherwise be incurred, in the purchase of numerous original works; and affords the greatest facility of learning the opinions of celebrated physicians and surgeons of all countries.

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* Godman's Addresses, 1824.

The medical periodicals also form a complete encyclopædia of the healing art, and prevent the necessity of procuring many expensive works. It is for this reason that every scientific practitioner, and every industrious medical student, possess them. A good library is, however, indispensable to medical practitioners. It ought to contain the best systematic, monographic, and elementary works, of this and foreign countries.

A well-selected museum is also a source of much instruction and information. It is likewise essential to associate with literary and scientific individuals, and to join the medical societies and academies. Such are a few of the requisites for obtaining a proper knowledge of the principles and practice of medicine.

Medical Degrees, Diplomas, and Medical Appointments.

It is now universally admitted, that the present curricula of medical education and practice in the British dominions, require the interference of the legislature for their improvement. This position is amply attested, by the appointment of a parliamentary committee in 1834, to examine into the actual state of medical education and practice, before which all the representatives of the universities, colleges of physicians and surgeons, and societies of apothecaries, in this kingdom, were examined; and all admitted that there was the greatest need of improvement. It has been long complained of, and with reason, that there is too much facility in obtaining degrees and diplomas, and that the period of study was much too short. A great number of professors attested this fact before the Parliamentary Committee. The period of two years and a half, required for acquiring medical knowledge by the Royal College of Surgeons, in London, and also by the Apothecaries' Company, is much too short; and the examinations are by no means probationary, nor the diplomas a sufficient guarantee to the public, of the possessors' competency as medical or surgical practitioners. Some of the universities are equally liable to the same charge of neglect and dereliction of duty. The title of doctor is too often obtained by incompetent individuals, who necessarily dishonour it. Some of the foreign universities absolutely sell their degrees, and it is now of daily occurrence to pay a few pounds into a certain bank, and receive a doctor's degree by post, from some of the German universities. This was the custom at some of the Scottish universities, until a recent period, (1826). It cannot be denied, that too many illiterate persons are still admitted into the profession in the different schools of this country, and such indiscriminate admission has considerably lowered the character of the faculty. This observation particularly applies to the College of Surgeons and Apothecaries' Company of London. These bodies require the most superficial preliminary and medical education, and often allow the most illiterate persons to obtain their testimonials. No experienced physician or surgeon will declare, that one year's attendance on the medical or surgical practice of an hospital or dispensary is sufficient for acquiring a practical knowledge of medicine and surgery? Who is it that will admit, that the science of medicine and surgery can be properly studied in two or three winter sessions of six months each? The time has nearly arrived when the good of the public and profession will enforce a uniform system of education, and one sufficiently comprehensive. Such will most probably be the result of the intended Medical Reform Act, which will be proposed by Mr. Warburton in the next session of parliament. It is now generally known, that almost all medical appointments in England, Scotland, and Ireland, are filled by jobbing and bribery. The majority of the physicians and surgeons selected, do not possess any, or sufficient, or superior merit; and obtain their situations by intrigue, family influence, or purchase.

Such is the case as regards our court, hospital, army, navy, and all other public medical appointments. Men of talent and genius can never succeed in obtaining places in this kingdom, while political and religious feeling, with intrigue and money, throw them into the shade. In France, a concours or medical jury, decide who is best qualified, among several candidates, for professorships and other medical situations. This excellent custom excites emulation, and rewards superior merit with a proper recompense. There is no means so favourable to the progress of science, and nothing so likely to foster that ambition which is so laudable in medical practitioners. What efforts are impossible to a young physician or surgeon, which inspire the hope of an honourable and profitable appointment, and the desire of conquering able rivals by extent and variety of knowledge? We find, accordingly, that some of the French professors had successively contested for appointments, so often as six different times, before they succeeded in attaining one of the objects of their ambition. It has been urged against concours, or public examination, that a timid individual might become so confused as to acquit himself so badly in his answers, that one of inferior talent or acquirement might be elected. It has certainly happened, that the public voice has not always approved of the decision of the jury. Nevertheless the decision of a medical jury after the public disputation, examination, and competition of rival candidates, would be infinitely superior to the election of professors and medical officers by private interest, and non-professional governors, which is the usual mode in this country. It is also notorious, that many individuals have often purchased their situations, though totally incompetent to discharge the duties belonging to them. It has also been long remarked, that the medical situations, filled by the government and public societies, are disposed of through favour and interest, and seldom on the grounds of merit or talent. Thus it was the custom, until within a few years, to place the fellows of the London College of Physicians in hospitals, dispensaries, and other public appointments, though, in general, far inferior to rival candidates.

Again, the surgeons appointed to all lucrative situations, as hospitals, &c., are mostly the relatives or apprentices of former hospital surgeons, who transmit appointments as ancestral property. Moreover, we find the colleges, excluding all who practise obstetricy or pharmacy from their council and examining boards. We observe, too, that the apprentices of the Dublin College of Surgeons, preclude surgeons of all other colleges, from infirmaries, and all situations of fame and emolument in Ireland. The result of all this monopoly is a carelessness and indifference on the part of the bulk of the faculty to the proper cultivation of science; they reasonably declare we have not the least chance of appointment under the present system, and there is no stimulus to exertion and study. The consequence is, that fewer improvements have been recently made in medical science in this kingdom, than in any other in the world. What have we done in introducing new and powerful medicines? Our neighbours have introduced all of them. What discoveries have we made, except those of Sir Charles Bell? The stethoscope and lithotrity do not belong to us. It is true, that we can boast of Sir Charles Bell's splendid discovery on the functions of the nerves, and of the application of transfusion, by Dr. Blundell, to the preservation of life after hemorrhage; but with these exceptions our improvements in physiology, pathology, and therapeutics, bear no comparison to those of vicinal nations. It is also true, that, Sir Astley Cooper tied the aorta, but *cui bono?*

Such are a few of the evil results of monopoly and abuse in the medical profession in Great Britain and Ireland. Talent and merit are unrewarded. But better times approach, a complete reformation in education, and the practice of medicine is at hand.

Entry of a Junior Medical Practitioner into the world.

A YOUNG physician or surgeon who has passed some of the best years of his life in the lecture rooms, hospitals, and libraries, expects, on receiving his degree or diploma, to acquire fame and fortune on commencing his professional career. He is well acquainted with the principles of his art, and closely follows them. He employs all that he has heard and read in the investigation of the nature and treatment of disease. He is a scrupulous observer of the rules of art, and fears to break them in their application; he examines with great care, and gives his opinion with diffidence or fear. He is cautious and timid in the use of remedies. The better informed he is, the less presumptuous or rash he will be in practice. He is in general diffident in himself, hesitates or is too anxious about his patient, and is for some years before he acquires that confident assurance, which is the result of experience. He generally supposes that he has mistaken the disease, and has not done enough for its removal. This is the ordinary feeling of the best informed medical practitioners in the commencement of their career; but experience will, in time, remove it. The complication or intensity of disease may be such that no remedial means can preserve life. The contrast between well-informed and ignorant practitioners is very remarkable.

It has been long observed that the most uninformed in every science and art are, in general, the most confident and self-sufficient. This is also the case with pretenders to medical knowledge. No case is too dangerous for them; they can cure all diseases, though they kill a vast number of patients. They attribute all their failures to the intensity of disease, and not to their own ignorance. As they have had no preliminary or medical education, which is so necessary to prepare the mind for the investigation and estimation of morbid phenomena, they treat diseases by names, and not according to their real nature. Men of unlettered ignorance usually pride themselves on imagined practical experience, or on what Cullen aptly termed "false facts," and blindly pursue the same erroneous system without a particle of sound judgment. In fact, nothing appears beyond their ability, or too difficult for them to attempt. They can cure all diseases—a power only possessed by empirics; they ascribe their success, in cases in which nature effected a cure, to their active interference, but they never suppose that their failures are in any degree the result of their incapacity. They do not know that experience, without a proper scientific education, is useless.

It cannot be denied, that unless a medical practitioner knows the anatomy and physiology of the human body, or, in other words, the phenomena of the animal economy, his observation and experience are based on ignorance, and must be erroneous. Such is the advantage of experience, unaccompanied by proper medical information. On the other hand, the well educated junior or senior practitioner, who has had the most extensive experience and information, is always diffident in his own powers, and doubtful of the result of the disease. He never professes to cure every patient.

But I must return to the career of the young physician or surgeon. On receiving his diploma, he is most anxious for fame, and thinks the world ought to be instantaneously aware of his qualification to practise. He, however, speedily discovers that the world esteems him as a student, and that he is not a more important individual than he was, the day or month before he received his qualification. He speedily discovers that patients will not consult him. Some suppose him inexperienced, and too youthful; others have their own medical advisers; and all will prefer practitioners of standing to our young Æsculapius. He now thinks that his youth is a great or invincible obstacle to his success, and he sighs for the time in which the public will reward him for all the labour and expense he has incurred in the study of his art. Nevertheless, every other member of the profession had the same difficulties to contend with, and only surmounted them by time, attention, skill, and unexceptionable morality. He does not imagine that a physician, extensively engaged in practice, has any cause to complain. He does not know that such an individual is deprived of all pleasure, recreation, or amusement, and regrets the period of his studies, when he enjoyed liberty. Thus, man is never content with his condition.

The first success or failure of a physician depends on the opinion entertained by the public of his talent. How embarrassing and difficult is the debut of a physician in the world! How careful he must be in gaining the confidence of his first patients, in investigating the symptoms of their diseases, and in employing remedies! He must recollect, that others of his faculty have been consulted on former occasions, and that their manners and conduct will be compared with his own. When the disease is dangerous, and he effects a cure, he will greatly benefit his reputation. His religion and zeal compel him to attend the poor and miserable, as well as the comfortable and affluent; and he may gain reputation by both. He will often succeed after his seniors have failed; because they in general belong to the old school, and he to the new. He should not expose their errors, unless glaring and dangerous to the life of the patient. He is always ready to afford relief to suffering humanity, with or without remuneration. In the same manner, a surgeon should never refuse to perform a doubtful operation when it is required. The patient ought to have every chance. Either physician or surgeon can explain to the relations the danger of any case.

The essential requisites of a physician are, in addition to the possession of real virtue, knowledge of the world, and polished manners, an earnest desire for fame, a great love of study, a good knowledge of charlatanism, and what is vulgarly termed humbug, a good share of small talk, and an audacity which nothing can disconcert. The critical reader will inquire, why a medical practitioner should be acquainted with charlatanism and humbug? The answer is, because it is the nature of mankind to esteem quackery, as it professes to effect cures of incurable diseases. All classes of society encourage and patronize empiricism; but an immense crowd of fools constitute the public. In all countries, the most absurd quackeries have been patronized; but this is easily explained, when we dispassionately observe the varied degrees of intelligence, and the love of life and of the marvellous which influences all ranks of society.

It must be confessed, though a stain on the dignity of the medical profession, but equally remarkable in every class of society, that some Esculapians have acquired success, fame, and opulence, by fostering the follies and prejudices of the world; and by acting as arrant humbugs. Such men are, however, despised by their brethren, who, in general, are actuated by the love of humanity and reputation. The former are despised by the honourable cultivators of medicine, notwithstanding their titles, station, and influence.

The medical profession has great reason to complain of the follies and injustice of the public. The mass of fools forming the public, with few exceptions, will ascribe professional success to chance or to nature; and, if the patient dies, some will not hesitate to declare that the doctor killed him. They will unhesitatingly proclaim the incompetency of the medical practitioner, unmindful of the well-known unfortunate truism, that many diseases and many constitutions are utterly incurable.

M. Lorry, a celebrated member of the profession has happily exposed the folly of the public in this respect. He says —" A physician fond of study has spent many years in the schools, hospitals, and anatomical rooms; he has passed the best years of his life in the infected air of hospitals: the pallor of his countenance, and the meagreness of his figure, attest the multiplicity of his vigils; and what remuneration compensates for these labours?"

Here the ignorant man of the world declaims against the stability of one of the noblest of human sciences, and unblushingly confounds medicine and empiricism. Thus there are many, whose lives have been saved by medical practitioners, who forget it, and even denounce the medical faculty.

If the public do not derive the usual advantages from medical practitioners, they should blame themselves for encouraging illiterate pretenders to medical knowledge, nominal doctors, and empirics. Such impostors are very numerous in all countries; and if the public do not take the trouble of distinguishing the learned from the ignorant, the fault is their own. If the nobility and gentry prefer the St. John Longs and such basket makers, the Hahnemanns, and other empirics; the woodmen of Molière, to well-educated and eminent medical practitioners, they must not decry the benefits of the healing art, and depreciate the Bells, Coopers, Dupuytrens, &c., &c.

In general, young medical practitioners are most attentive to their patients, and render them the greatest services. So do all duly-educated members of the medical profession, who are influenced by the code of ethics laid down for their guidance. There are a few, however, among the eminent in all countries who are a disgrace to the profession. They take advantage of public credulity, which in all ages has rendered the worthy part of mankind dupes to the artifices of the knavish; who, unrestrained by principle, are ever eager to profit by the unsuspicious disposition of generous minds. Among the various kinds of imposture practised on society, quackery has always been the most successful, in consequence of the extreme respect paid to the professors of the healing art. These have now and then availed themselves in acquiring reputation by the foibles of the public.

Reputation of a Physician.—When the desire of reputation is inspired by the love of fame, it is allowable, because it tends to the good of society. It has been often observed, that those physicians who have not a laudable ambition to rise to eminence by their talents and honourable conduct, seldom or ever become renowned. They remain every-day characters, and never obtain the highest places in the profession. When a thirst for gold is the only object of professional reputation, it leads to meanness and disreputable behaviour. We see empirics, illiterate and professional, amassing great wealth at the expense of every virtue which adorns the true medical character.

The public is the cause of this, as it awards reputation by caprice, and this is the reason that charlatans share, in common with educated physicians, reputation and renown. They announce, with unblushing effrontery their marvellous powers, and all ranks of society, both high and low, are ready to believe them. Kings, nobles, and commons, patronize the empiric, no matter how preposterous his pretensions. Let him be an animal magnetizer, a homœopathist, an extractor of all diseases with a stimulating liniment, or metallic tractors, it is all the same. Witness the patrons of a Long and a Hahnemann, of a Graham and his celestial beds, from which a noble race of offspring was to follow; witness a scion of nobility attesting, three years since, that he saw a quack extract quicksilver from a lady's brain! Look to the noble patrons of Hahnemann, who believe the most salutiferous doctrine, that the millionth part of a grain of magnesia or of sugar could not only cure the inhabitants of a city, but an empire, however extensive. What difficulties, on the contrary, has the modest man to surmount before he can obtain the smiles of public favour.

There, ~~is~~ are, however, in medicine, different kinds of reputation which lead to fame and fortune. One gives himself up to scientific pursuits, another distinguishes himself by writing or teaching, a third is renowned as an excellent physician, a fourth as an operative surgeon or obstetrician, &c.

It rarely happens that one individual possesses these different claims to celebrity. The healing art is too abstruse and extensive for the greatest genius to comprehend it in all its parts. One is superior in medicine, another in surgery, and another in obstetricy, chemistry, botany, &c.

When a physician acquires reputation by merit, he should never attempt to increase it by resorting to the artifices of charlatanism, which invariably lower him in the estimation of his brethren, and, through them, of the public. He should avoid all species of puffing, whether having nurses or relations to trumpet his abilities, or superficial works to circulate gratuitously among his connexions, and their friends. If his fame be founded on talent and merit, it rapidly increases without the artificial helps—it enlarges as it progresses—*vires acquirit eundo.*

If the cacoethes scribendi should seize one, let him write something rare, new, or—nothing: *scribe rara aut nova, vel nihil.* The style and composition ought to be correct and elegant. Citations may be numerous and acknowledged, though some writers too often give the whole of other men's works and opinions as their own. These are generally detected and exposed by reviewers and critics. It is no excuse to the reader that a work is written or printed in a hurry, and full of blemishes; the public would have waited for it with patience, and seldom care if it had never been published. An author should deliver his opinions with modesty, and expose what is true, dubious, or erroneous. He must rarely condemn others, or censure the living or dead with undue severity. He must praise sparingly, and vituperate more sparingly. There are some writers and critics who praise no one, and vituperate every one. They find fault with every thing—style, composition, opinions, arguments, observations, and conclusions. They hold, that every thing is to be found in the works of the ancients, and that there is nothing new under the sun. These critics raise a host of enemies against them, and seldom have any friends. They should adopt the ethical axiom:—"it is not right always to praise or dispraise"—"Nec laudare semper, nec semper vituperare decet. Lauda parce, vitupera parcius. Lauda recentes, lauda veteres, vel utrosque carpe, si licet. Stet sua cuique reverentia, suus honos. Non viventes auctores enormiter laudes, ut vicissim lauderis. Stet verbis, stet titulis, stet sua encomiis mensura. Unico libello scriptores omnes, omnes amicos non alliga. Nec æmulorum, nec mortuorum laudes dissimules, nec excedas."

When criticism is unjustly severe, it often becomes pointless, and only serves the circulation of a work.

There is no work free from some objection, and there is a vast number of modern publications deserving of severe criticism. Thus one man writes a pamphlet or book, for the express purpose of making himself known by advertisements in the public journals; another does not state a fact that was not well known for centuries before his time; another gets himself puffed in a sly paragraph of some newspaper; and in these, and a thousand other ways, do medical practitioners attempt to captivate the public. These schemes, *ad captandum vulgus*, are derogatory to the dignity of medicine, though they are now unblushingly laid by some of our highest physicians and surgeons. We daily observe their advertisements by the side of those of empirics, and their paragraphic puffs are most abundant.

Few of the many medical works now published in this country are successful, and few pass through future editions. Many of them are still-born from the press; others speedily die. This failure of success has influenced publishers so much, that they rarely purchase a copyright of a medical work, and will take no part in the risk incurred in bringing out books of this description. It was lately stated by one of the most extensive medical publishers in London, that few monographs had a circulation of five hundred copies. Does this want of circulation arise from the mediocrity of books, or from the distaste for medical literature? I think from the former. But a second edition is called for; a new title-page, preface, or chapter or two are added; the public is gratefully thanked for its patronage; and this species of charlatanism is invariably discovered and censured.

Besides these modes of gaining fame, we find physicians and surgeons recommending apothecaries, and *vice versa.* The female portion of their own and other families become puffers of their skill, and often succeed in increasing their fame. A lady of title has been known to make the reputation and fortune of her medical attendant.

People of fashion are led by notoriety and imitation of each other, and thus the physicians to royalty are indispensable to the nobility. No other will do.

In other instances, a reputation and a name are made by many petty artifices—by gossiping, a talent for flattery, the influence of medical and other patrons, and, lastly, by religious partisanship. These means will often raise a medical man in public estimation, though he does not possess a ray of talent; while the man of genius, of erudition, and of practical knowledge may, without them, remain all his life in "illustrious obscurity." He sees numbers of his inferiors who, by their address, policy, and worldly wisdom, rapidly pass him by, and leave him in the shade.

Nevertheless, what a galaxy of men of genius and knowledge have risen to eminence and fame. It is unnecessary to multiply examples; but be it observed, that no physician arose to greater eminence since Hippocrates than Boerhaave. A letter was addressed to him from China with this superscription—"To the Great Boerhaave, in Europe." It reached him.

To make oneself known.—It has been long observed, that great talents are not the surest or speediest way to acquire much medical reputation. It is, in general, a matter of the greatest difficulty, for a young physician, or surgeon, to make himself known in a large city, where there is a prodigious number of doctors of one sort or another. What difficulty, what address, and what labour are necessary, before a junior can obtain a prominent place among the multitude; or raise the edifice of his reputation! Years must elapse, in general, before he has accomplished his object. In fact, as Dr. Baillie truly observed: "he cannot earn bread until he has not teeth to eat it."

Let us examine the means which are to be employed to succeed in practice, and those that ought to be avoided. The credulity and folly of the public are the causes which impede medical practitioners in their career. The public never distinguish between the educated and uneducated professors of the healing art. Those who make the greatest promises—and they are the most ignorant—are surest of favour and success; while those who ought to be patronized, are entirely neglected. Such is the general result, but there are some few exceptions.

It sometimes happens, that distinguished or celebrated individuals have patronized a young medical practitioner, more on account of vanity, than a love of science. They are not always particular in their selection, and often prefer the ignorant to the learned; indeed, it generally happens, that genius is neglected, while ignorance finds the most powerful protectors.*

The natural protectors of a young physician, or surgeon, are his masters, or those practitioners who have acquired eminence and celebrity. The estimation in which they are held, easily allows the junior to clear the foundation of his reputation. Every medical practitioner who wishes to succeed, must be determined to accomplish his object, and to surmount a host of difficulties. He ought to have a good knowledge of the world, and accommodate himself to the follies and foibles of those with whom he comes in contact. He must possess policy, politeness, tact, and, as I have already observed, some knowledge of charlatanism, and perhaps, "humbug." Such are the means of acquiring great celebrity and fortune. Indeed, it rarely happens that talent—the enemy of artifice—leads to celebrity.

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* Gresset has well remarked on this custom: "Des protégés si bas, des protecteurs si bêtes."

I cannot agree, however, with M. Monfalcon (*Dict. Des. Sciences Med.)* in his advice, which is similar to that of Lord Chesterfield to his son, as regards society in general: "that all young medical practitioners who wish to gain a reputation rapidly, should bespeak the good opinion of the fair sex—be assiduous, complaisant, gallant to them, but nothing more. They should study every thing to please, and flatter feminine vanity. The first thing necessary, is a perpetual adulation; the second, an absolute devotedness. There are some whose love of study and self-denial, unfit them for paying proper attention to the fair sex, and they can never become doctors *à la mode.* When their vanity is flattered by a fashionable doctor, they proclaim him in all places as a charming man and a learned physician. He takes care to sympathize with them on account of their nervousness from imaginary disorders; he advises amusements, change of residence, travelling, &c. and often assists in rendering the husband the very humble slave of the will of the wife. Some medical practitioners have enjoyed the faculty of addressing small-talk most agreeably to the other sex. It would be invidious to mention names, though it might be easily done. But there is no reason why 'grave, sad, and discreet doctors' should not possess amiability as well as all other individuals." Medicine is a science by no means incompatible with the usages of the world; it does not exempt those who practise it from being distinguished for that politeness, amenity, and those graces which charm society.

It has long been admitted, that the art of pleasing and the art of healing have intimate relations to each other.

If a medical practitioner does not possess politeness, and those graces which distinguish a gentleman, he will be very much impeded in his career. Manners and personal appearance are every thing with the majority of the world. No man ought to be more polite or possess a greater knowledge of the world than a medical practitioner. He should avoid eccentricity, or peculiarity of manners.

There are some who are so passionately fond of study, that they cannot live without their books, and they withdraw themselves from society to pursue their learned researches. This constant study gives them an embarrassed air and a timid demeanour in company, and is very injurious to their success in the practice of their profession. No professional man ought to neglect every legitimate means which is calculated to increase his reputation, or to obtain public approbation. He must renounce all amusements and pleasures, as society calls for him every instant; he cannot enjoy repose without interruption, and his sleep only continues so long as others do not disturb it; but the incessant toil of his profession requires relaxation to preserve his health. He must occasionally frequent places of public amusement, though he is advised by his seniors, to leave balls, fêtes, routes, &c., to the unthinking portion of society. A medical practitioner, who frequents such amusements too much, is usually considered by the public, as having little to do in his vocation. It is true, that more serious matters generally require his attention; *urgentiora illum vocent negotia.* The world is so severe, that it will sometimes censure a physician or surgeon who cultivates those arts and sciences which have no immediate connexion with his profession. It also requires him to avoid all other pursuits except his vocation. This is often a great hardship, as when a medical practitioner can scarcely support his family by his calling, and might acquire wealth by following other business. It is for this reason that many members of the profession are now obliged to engage in various commercial and other speculations.

"Scientific physicians," says M. Monfalcon, "sacrifice your health and fortune to become learned and clever; sit over your books, become pale in the hospitals, meditate night and day on the most difficult points of your art, study like Boerhaave, fourteen hours a day for sixty years, renounce all the pleasures of life, and the charms of society, observe a complete self-denial, and if you disdain to make yourself known, you will be forgotten, neglected, and unappreciated; and you will never approach the fame of an empiric."

Charlatanism will always be successful, as it governs man by the first of all his interests, the love of life and the fear of death. Its origin commenced with man, and every one is in turn a doctor.

> Fingunt se medicos quivis idiota sacerdos,
> Judæus, monachus, histrio, rasor, anus,
> Miles, mercator, cerdo, nutrix et orator,
> Vult medicus hodie quivis habere manus.

But the surest means of success are profound knowledge of science and of the world. Some obtain fame and reputation by the first, others by the second, and some by possessing both. Another means of obtaining success is forming a matrimonial engagement.

Marriage of a Medical Practitioner.—There are many reasons to prove the necessity of marriage for a medical practitioner; it gives him more importance and maturity; it leads the world to overlook his youth and age, and it gains the confidence of families and mothers, who, unless he had entered into this state of life, would often decline his services. Hoffman was of opinion that a medical practitioner ought not to marry too early, unless he did so very advantageously, because a wife and establishment would occupy a large portion of the time, which ought to be devoted to study. This last objection is futile, as we find Racine was married, and was alternately pleased with his children and his books; Haller was assisted in his literary pursuits by his wife, and was one of the most voluminous authors of his time.

It is, however, the general opinion at present, that a medical practitioner ought to marry as soon as he can do so prudently and advantageously. This was the subject of a thesis, sustained by Dr. Treyling at the University of Ingolstad, in which he discussed it in the form of two questions: 1. Ought a physician marry? 2. What sort of a wife is suited to him? This writer declaimed against marriage, cited all the arguments against it, and contended that the public prefer unmarried physicians! He passed in review all the disagreements of married persons, and dwelt more especially on the danger of female infidelity.

"Accidit et hoc viro præsertim medico, quod si juvenculam sibi junxerit, hancque formosam, habeat, quod metuat, illud Epicteti dicentis: qui formosam duxerit, habebit communem. Cum enim medicus densa praxi obrutus, nec domûs nec uxoris custos esse valeat, quid? Si hæc interim hospitalis sit, et Dianam æmulata cornifica metamorphosi maritum cervina superbum coronâ in Actæonem transformat, hæredesque ipsi aperat, non nisi adamitico cum ipso sanguine conjunctos? Ita ut non semel saltem tacitè secum murmurare querelus debeat: haud ego mi uxorem duxi, tulit alter amorem. Sic vos non vobis." Such was the opinion of Epictetus. It is not, however, true, that he who marries a beautiful woman, enjoys her in common with others, nor does it happen that the husband always wears horns, or has a spurious heir. Handsome women are objects of general admiration, but when their minds are properly cultivated, they spurn the slightest equivocal compliment, or impertinent remark. It must be admitted, however, that if, on the other hand, there is a want of high moral feeling, the wife of a medical man, actively engaged in practice, has ample opportunity and time to degrade herself and dishonour her husband. Nevertheless, there are no more indiscretions in the families of medical practitioners than in all others; and, therefore, marriage is as suited to them as others; and, indeed, much more so, for the reasons already assigned. It is a state prescribed for all men, for "it is not good that man should be alone."

In fine, a medical practitioner seldom succeeds as an obstetrician, or is consulted in diseases of women until he is married, or considerably advanced in life. The virtuous of the other sex have a great objection to very young practitioners during parturition; and even the poor, who are compelled to obtain medical attendance from public charities, very frequently decline it, when young medical students are ordered to attend them. " Marriage is honourable in all," and particularly so to the members of the medical profession.

Means of obtaining the confidence of the sick.—It is useless for a medical practititioner to assume a grave exterior, and to possess the most profound scientific knowledge, unless he obtain confidence of the sick. Without this the greatest talent loses much of its power; and with it, every thing is possible to mediocrity. The principal means of obtaining this confidence, is the art of persuasion; which is a gift not always possessed by genius. The medical practitioner ought to be a man of the world, as well as minister of health. Some will prefer a grave, others a cheerful physician; but whatever may be the talents and acquirements of a medical practitioner, he cannot preserve the confidence of his patients, except by success; and a few unfavourable events may injure or ruin a reputation, however well established. The public is, in general, disposed to attribute the impotence of medicine to its practitioners.

Another cause of loss of confidence, is when a practitioner is unable to explain the nature of disease, or fails to remove or alleviate it. The sick, or their friends, will not be satisfied without further advice; and if recovery happens, the whole merit is awarded to the new attendant. Thus it is manifest, that "knowledge is power," and often triumphs over all other means of securing the confidence of the sick.

Rewards of medical practitioners.—If the office of physician, or surgeon, exposes every day to the disdain of ignorance, to the forgetfulness of ingratitude, and to the outrages of calumny; if reputation entirely depends on the caprices of the multitude; if to practise, requires a medical man to renounce all pleasure, and even his liberty—he finds, however, in the exercise of his profession, many rewards for his sacrifices. The esteem of a small number of learned and sensible men, and the firm conviction that he has done his duty towards the sick, console him against the jealousies of his rivals, and the unreasonableness of the world. A quiet conscience is the recompense of a medical practitioner, who honourably discharges his noble functions. He is delighted with the good he has done, and with the conviction that he cannot do too much. The poor implore his aid; he is the harbinger of hope and consolation in the abodes of misery and distress; and is blessed by the afflicted whom he relieves.

When, under Divine Providence, he rescues a patient from the jaws of death, and conducts a convalescence after a dangerous disease or operation, his success is an ample reward for his cares and anxieties. He that is saved becomes his friend for life, and lauds his skill and judgment.

It has long been remarked, that physicians and surgeons, in general, with few exceptions, seldom acquire a large fortune; nevertheless, the fruit of their labours is not subjected to such sudden vicissitudes as affect commercial men, and precipitate them from extreme opulence to extreme poverty. They are placed in tranquillity and a happy mediocrity, which, of all states of life, is that which is most accordant with happiness. Respected by society—esteemed by men of learning—desired by the rich and poor—the cultivators of medicine to the remainder of life are venerated, loved, and honoured. Many of the profession have, however, acquired immense wealth. Sir Astley Cooper was in the receipt of £20,000 a year; and it is said, that one year his income, by his profession alone, amounted to £25,000. Few deserved more success, but fewer, as the world now exists, if any, will ever acquire so much.

Relations of Medical Practitioners towards each other.—The etiquette of the profession requires that its members should live on friendly terms with each other, a reciprocal indulgence ought to make them excuse the errors they commit, and especially those of junior practitioners. They ought to be always on good terms. It would be shameful and scandalous in one member to expose the errors, or depreciate the merits of another; for no one would like this to be done to himself. Calumny and detraction are base vices, which ought not to characterize any medical practitioner. No one ought to injure another "by look, word, or suspicious silence," or under any pretext whatever interfere with the patients of another. It is an axiom, that we should refuse attendance on patients under the care of another practitioner, unless in co-operation with him, or until his visits are discontinued, or when there is danger of death. Nevertheless, this vice is too common with necessitous practitioners. They are often jealous at the success of others, and depreciate, or calumniate their rivals. There is no envy so great as that of medical practitioners: "non est invidia supra medicorum invidiam." We rarely observe true friendship existing among them: envy and interest oppose it. But the real philosophical physicians despise such views, and entertain the strongest friendship for each other. A little reflection will convince any rational practitioner, that no man can be treated badly without resenting such conduct; and that never was there a wiser maxim than, "do unto others as ye would they should do unto you."

Some cannot speak without wounding the reputation of others. Many are bitter in their remarks, prodigal in their criticisms and sarcasms, imperious and cutting in their decisions; and these make a host of enemies for themselves. The wounds inflicted on self-love never heal; and it shows little common sense or discretion, to lose a friend for a remark. This however is often done; and some few of our most scientific practitioners have suffered severely by it. They have lost much consultation practice, and very justly, on account of such unprofessional behaviour. Thus, some engaged in consultations act uncourteously towards the first attendant; wound his vanity and self-love; lower, or endeavour to lower him in the opinion of his patients, his friends, or attendants. Others arrive before the hour appointed for the consultation, or several hours afterwards; and then act in the same disgraceful manner. A few encourage their trumpeters to sound their praises to the relations, acquaintances, or menials of the sick; or bribe nurses, with the view of depreciating the practitioner in attendance. These, and numerous other acts of immorality, are disgraceful to all who are guilty of them. They are, however, of too frequent occurrence in all large cities, and among unprincipled practitioners in all situations. But no respectable or honourable physician or surgeon would be guilty of resorting to them.

Medicine of the Mind.—One of our celebrated poets has asked,

> "Canst thou minister to a mind diseased,
> Or pluck from memory its rooted sorrow?"

The answer may be given in the affirmative in many cases. There are cases in which we minister to diseased minds with perfect success. Indeed, the art of reading the human heart is indispensable to the medical practitioner; and it is often all that he can do. Medicines do not always cure disease; sage advice or discourse, which convinces the reason; and the proof of friendship, which touches the heart, are often the most powerful means of preserving health and life. He who knows the characters of the passions, can best moderate them, diminish their influence, and often prevent their fatal results. Those who have studied the human mind, can mostly discover the cause of the emotions of patients, the value of their answers, and the confidence that ought to be placed in them. Without this quality, we cannot satisfy or govern hypochondriacs, or remove their fears and apprehensions. Every one knows the influence of the mind over the body in health and disease. It was a profound knowledge of the human heart which led Hippocrates to discover the love of Perdicas for Phylla; and Galen, that of the Roman lady for Pylades. The importance of the moral influences in therapeutics is so great, that the ancients considered the mind, with philosophy and rhetoric, as medicinal remedies; and that their influence on the body was most advantageous. It cannot, indeed, be denied, that moral medicine is in many cases more powerful than physical. Who does not know, that the declaration of an eminent physician or surgeon, "that recovery is certain," will do more good than the whole materia medica? We often see this in the practice of obstetricy—the assurance of safety and speedy relief has the most astonishing effect in expediting parturition.

It was on this account that philosophy and medicine were cultivated by the ancient physicians, and that modern universities require an excellent preliminary education of those intended to study medicine. It is really a melancholy reflection to any one of education and acquirements, to think, that nine-tenths of the profession in this section of the British empire are admitted as medical practitioners if they can translate the first chapters of Gregory's "*Conspectus Medicinæ Theoreticæ*," and those of "*Celsus de Medicina.*" And such is the classical ignorance of those entering the profession, that divers translations of the above are published, and even some that are absolutely interlineal! No knowledge of English composition, of logic, of rhetoric, of natural or moral philosophy, of mathematics, and the other studies included in humanity are required; and every one who can translate the above is admitted by the great manufactory for doctor-making, the Apothecaries' Society in London. What notion of moral medicine have individuals thus educated? Can persons thus educated be influenced by that consummate knowledge of the human mind so essential in the practice of medicine? What will foreigners say to the preliminary education which extends to a power of translating the first and third books of "Celsus de Medicina," and the first nine chapters of "Gregory's Conspectus de Medicina?" Surely, no one can consider this a sufficient proof of classical or general knowledge. I grieve to indite these remarks, but truth obliges me.

It is different, however, in the universities. In these institutions the preliminary education is as extensive, and indeed more so, than that required in other countries. They adopt the adage—

> "Adde quod ingenuas didicisse fideliter artes,
> Emollit mores, nec sinit esse feros."

Physical Medicine.—We now approach the usual occupation of medical practitioners. We bring them to the bedside, to investigate the nature and treatment of disorders and diseases. All general and medical studies—all our former remarks, are subservient to this most important ministry.

The physician or surgeon bases his diagnosis, on the history of his complaint given by the patient. He considers the age, sex, temperament, habit, occupation, residence, and constitution of the patient, and the season; and he next inquires, what is the most troublesome or painful sensation? The patient replies, that he has pain in some particular part, which at once directs the attention of the inquirer to the seat of his malady. It is in the head, chest, abdomen, or extremities. A momentary glance at the countenance, chest, or abdomen, will enable a scientific practitioner to determine the seat of the disease. He can also conclude in a few minutes, whether the malady is a disorder of function, an unpleasant sensation, pain, spasm, &c.; or a disease, a change of structure, congestion, inflammation, or the usual consequences of the last.

In either case, disorder or disease of one organ will derange the whole, and may cause painful sensations in all, and a multitude of symptoms. In every possible case, there is disorder of function, change of structure, or a combination of both.

In disorders of function, the nervous power, or innervation, is anormal, or deranged; and the internal and external use of sedatives is indicated.

In disease, the circulatory system is affected; there is congestion, inflammation, suppuration, ulceration, cicatrization gangrene, &c. Disorder or disease may affect all parts of the body, in consequence of the universal distribution of nerves and blood-vessels. It is most important to determine the existence of the one or the other, as the treatment must differ. In disorder of function, without change of structure, there will be some unnatural sensation, which may cause pains in all parts of the body, and be removed by the internal and external employment of sedatives. In disease, general and local bleeding, low diet, counter-irritation, purgatives, and diaphoretics, will be necessary. In complicated cases, both classes of remedies must be employed.

It is not understood by society, that a learned and scientific practitioner examines the head, chest, and abdomen, in a minute or two; and patients suppose that they must detail every sensation they have felt for months or years. All complaints are either disorders or diseases, or both combined; and the latter are acute or chronic. The simple question, What is the matter?—where have you pain?—what distresses you most?—will enable the inquirer to discover the seat of the malady. He then determines whether it is disorder or disease, and prescribes the appropriate remedies. The fundamental principles of medicine are now happily fixed, or it would be impossible to arrive at a correct notion of disease.

Many patients cannot express their ideas correctly, and jumble the most opposite symptoms together; they enter into long digressions, and confound the most different objects. They complain of all diseases. The question, where have you most pain?—or, where did it commence? will lead the practitioner to the seat of the complaint. In my hospital and dispensary practice, I inquire, before a large number of students, which of all your complaints is worst? and what was the first symptom? I also adopt this plan of interrogation in private practice. It affords a light which guides me through great darkness; and by it I distinguish the circumstances that preceded the attack, as well as the nature of the complaint itself. I have fully described the method of examining patients, and distinguishing diseases, in my edition of "*Hooper's Physician's Vade-mecum*," and "*Lectures on the Physical Education of Children*, 1835," already quoted.

There are some patients who exaggerate their sufferings, and the expression of pain is not always real. Others put insidious questions to their medical adviser, in order to learn his opinion of their condition, as hypochondriacs, nervous, and parturient women. The former suppose that they labour under one or many fatal diseases; the last are anxious to learn, are they in a safe condition, and how soon they will be well, or delivered.

We also observe many who simulate a variety of diseases with great success. But the pathological symptoms which belong to the functions, however modified by the influence of the brain, are the signs on which we can place absolute confidence. Physical signs will never deceive us, and we should always judge by them. The statements of patients, or of medical practitioners, cannot always be relied on, while physical evidence is invariably correct. I might mention numerous instances in which patients and practitioners would have deceived me, had I not solely depended on the physical phenomena.

In examining patients, we should inflect the voice, and avoid putting our questions too abruptly, lest we confuse and embarrass them. There is an excellent chapter in the work of M. Double on Semeiotics, as to the method of examining patients, and further information may be derived from the production of M. M. Merat, Creuveilher, and Martinet (see Professor Quain's translation). M. Double divides the subject into two distinct parts—the knowledge of the history preceding the disease, and the circumstances which appertain to the disease itself. The physician ought to investigate all circumstances relative to surrounding objects, season, temperature, and medical topography where he practises. He then determines the age, sex, profession, occupation, or mode of life, of the patient; the passions, habits, general health, or ordinary state of functions, state of health before the invasion of the disease, the hereditary diseases of the father, mother, and family; the antecedent diseases from the period of infancy: and, lastly, the general effects of medicines upon the constitution.

The practitioner should sit by the bed-side, so as to see the patient's countenance, and then examine the external appearance of the body, attitude, movements, coloration of the skin, &c. He then compares the existing and natural states of the functions, and proceeds to examine the external senses, respiration, circulation—including the state of the heart and pulse, digestion, secretions, excretions, generation, sensibility, irritability, voice, voluntary motions, sleep, intellectual faculties, and temperature of the body. Every part of the human body is thus examined and passed in review. We also know all that belongs to the symptoms, mutations, and sympathies—all the circumstances that can modify the signs and prognosis of diseases. The nature and treatment of the complaint are then easily determined.

It is right to visit the patient at the paroxysmal periods, or when he is worse; and also at other hours.

It is worthy of remark, that individuals who suffer from the effects of libertinage, are often ashamed, and disposed to mislead their medical advisers. A large experience warrants me in stating, that the abuse of the generative function, is a most common cause of indigestion, hypochondriasis, neuralgic, or painful, and nervous complaints. It requires great delicacy and caution in alluding to this function at all times, but especially when youths are our patients. The excitation of the generative organs at puberty, and often during the whole time of celibacy, leads to the adoption of natural or other means for its subdual. There are, of course, exceptions to this general proposition. Those who abuse or over-exert this function, are affected with severe indigestion, flatulence, lowness of spirits, fear of death, dread of impotence, and innumerable unpleasant sensations. Such cases are of frequent occurrence from the age of puberty to the decline of life, and sometimes even in old age. The celebrated Tissot has given numerous illustratiions in his work on Onanism, and a vast number has fallen under my own observations. I have slightly alluded to such cases in my work on Population, Marriage, Impotence, and Sterility.*

I am convinced, by multiplied experience, that the genital function is, in general, too much excited, and consequently debilitated. The profession, in general, overlook this fact, and very improperly fall into the vulgar error, of ridiculing those who have abused this function, and rendered themselves impotent or sterile. Such persons hesitate to consult many, and those who have not offspring, are too often derided by their acquaintances. They avoid consulting respectable medical practitioners—for the reason above stated—and apply to unprincipled empirics. They are, as a matter of course, duped and deceived by these wretches, and often seriously injured, or their health destroyed. Several have applied to me under such circumstances. I feel convinced that the generative function is one of the most powerful in the body, and influences mankind in general, more than any other. Every male, high or low, makes it the theme of conversation, and the most modest and virtuous women are greatly annoyed at infecundity.

In delivering an opinion to a patient, the physician, or medical practitioner, ought, in general, to predict a favourable result when circumstances permit; avoid alarming him, and hope for the best. He may, however, express his real opinion to the relatives, so as to give them an opportunity of consulting others, if they think proper. In most cases, the prognosis must be guarded, as so much depends upon the mutations of disease, punctuality of attendants in following directions, on the seasons, situation, and compliance of the sick. Medical practitioners have often been most unjustly ridiculed by the world, on account of the ambiguity of their opinions as to the issue of acute diseases; but no man can be positive as to the prognosis. He may state, he is most happy to say, that at this moment there is no danger: but diseases undergo numerous changes, and that it is utterly impossible to predict, with certainty, the result.

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* See also " De l' Onanisme et des autres Abus Veneriens, considérés dans leur rapports avec la Sante. Par M. Deslandes." 1835.

This is the fact and truth, in the majority of human infirmities. The diagnosis or distinction of diseases, is also a matter of grave importance. If the disease is mistaken, censure will assuredly follow. Thus, suppose it is stated, that a young female of irreproachable character is affected with gonorrhœa, or is pregnant, when there is really no such disease or condition; the practitioner would be most severely and justly censured. It is a common error to assert, that female children from the age of six to fourteen years have been violated, and infected with gonorrhœa, when their condition depends on physical diseases. I have fully described such cases in another part of this work; and they are noticed by Underwood, Hamilton, Dewees, Sir Astley Cooper, Jewel, and numerous French authors.

In fine, I have to observe, that I have already described the moral qualities which are necessary to a medical practitioner. I may, however, remark here, that he ought to possess sensibility, humanity, amenity, amiability, and compassion. He must make the greatest allowances for the conduct of those in pain and suffering. Thus, a medical practitioner must display all the finer feelings of human nature, and all the moral excellencies which distinguish the true cultivators of his art, while he is affording aid at the painful process employed by nature at the nativity of his species. Women are naturally timid at this period, and require all the sympathy and kindness that can be shown towards them. I have fully dilated on the duties of the profession under such circumstances, in my Manual of Gynæcology, or Obstetricy.

I may state, in this place, that medical practitioners ought to be most patient, humane, benevolent, and never resent any offensive remarks that may be applied to them by the sick. Such remarks are invariably apologised for by patients.

Lastly, we ought to be cool and undisturbed in the worst cases. Perturbation of mind betrays weakness and ignorance. If agitation and indecision characterize us, patients will lose all confidence in us.

One who knows his profession well, will be never agitated. He will employ the resources of his art; and if these fail, he will remember, that all medicine is from God, and that it may not be accordant with his divine will, that recovery should happen in every case of disease.

Rules for Prescribing.—The art of prescribing medicines demands especial attention, and requires to be well understood. Diseases are cured with remedies, and not with words. There are certain rules for prescribing, which ought to be followed as closely as possible, and ought not to be deviated from, except in certain circumstances. The precepts of Gaubius are simple, and I have added some remarks in my translation of the New Practical Formulary of Hospitals, 1835.

1. The practitioner, whom prudence ought always to guide, should never prescribe a medicine without being able to give satisfactory reasons for so doing. The first question he ought to put to himself should be, is it or is it not necessary to administer medicines in the present case?

When it is thought that the powers of nature are sufficient to effect a cure; that the disease is absolutely incurable, or that the cure of the disease would produce a greater disease, it is generally thought proper to abstain from prescribing medicines, as well to prevent injuring the patient as uselessly tormenting him. Medici plus interdum quietè, quam movendo et agendo, proficiunt. Nevertheless, as in some cases it would be inhuman to abandon the patient, and in others impolitic to shew the imperfection of our art, under such circumstances those substances which, if they are not really useful, are not injurious, ought to be administered. This precaution should principally be attended to in the treatment of women and young girls.

2. When on the contrary it is necessary for the practitioner to prescribe, he ought, in the first place, to determine what he should do, and the medicines he ought to employ, &c.; questions, the solution of which he will find in his therapeutic knowledge. He should always recollect, that his end is the cure of his patient, as promptly and in as agreeable a manner as possible.

3. He ought always to make choice of the most efficacious remedies, and those best calculated to the attainment of his end; and this not only with respect to their nature, but likewise to the forms under which he prescribes them. Those medicines ought always to be employed whose actions are the most certain, and which are not likely to cause any bad effects. In certain hopeless cases, a medical man may try extreme remedies, but always with reserve, and be careful to announce to the relatives, the uncertainty of their results.

4. Medicines which are but imperfectly known ought never to be used, if the same effects can be obtained by the employment of those substances which have been sanctioned by usage; and if it is necessary to prescribe new remedies, it should be done with the greatest prudence.

5. The use of substances which, by being kept, easily become changed, and which age has rendered inert or prejudicial, ought to be carefully avoided. In acting in this manner, a practitioner runs no risk of not obtaining the desired effects, of uselessly fatiguing the patient, and even producing serious accidents. It is for this reason that a practitioner, if he does not compound his own medicines, should have his prescriptions compounded in those houses where the sale is rapid, by which means he would stand every chance of having them well prepared, and their ingredients fresh.*

6. All things being equal in other respects, he should prefer indigenous medicines to those of foreign countries; they

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* Some writers think it high treason to act on this rule. They shall be nameless, though they deserve exposure and censure.

are more easily known, and less likely to be adulterated.

7. The use of medicines of a low price should be preferred, provided they are as efficacious as those of a higher. Nevertheless, when a practitioner has to treat a rich patient, who thinks, as it sometimes happens, that medicines are only efficacious inasmuch as they are costly, he ought, in a certain degree, to comply with this ridiculous prejudice; because, as we have before said, the influence of the imagination is not to be despised.*

8. There are likewise cases in which, on account of prejudices, or individual repugnances, the practitioner is obliged to disguise, in different manners, the substances he prescribes. At one time it is their name he is obliged to change; at another, their taste and odour he will find necessary to mask by proper mixtures. But he must always be careful to be perfectly intelligible to the pharmacopolist, and not alter the therapeutical properties of the medicines he orders.

9. It is advisable, as much as possible, not to make use of those medicines whose odour, taste, &c. are very disagreeable; or, at least, to use them in small quantities, and disguised as we have already mentioned. And here it may be proper to remark, that this plan should be strictly followed in treating women and children, and in every case.

10. Before prescribing any medicine it is indispensable to find out, by every possible means, the idiosyncrasy of the patient. For it sometimes happens that a medicine, in other respects judiciously chosen, may, on account of certain individual dispositions, impossible to be foreseen, become useless or even prejudicial. For example, castor oil, one of the mildest purgatives, and one most commonly used, even for children, acted as a poison on all the individuals of a whole family which one of us was called in to attend. Gaubius relates an example of a man upon whom a small dose of the powder of crabs' eyes produced all the symptoms of poisoning by arsenic. Instances of this kind are too common to require enumeration.

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* Nothing will do with some of the asinine part of society, but expensive medicines

11. It sometimes happens that the patient is strongly prejudiced in favour of certain medicines, either because he has seen them administered with success in cases which he considers similar to his own, or for some other cause. If the practitioner thinks that the use of the medicine desired will not be injurious, he ought to comply with the wish of the patient; in other cases, without positively refusing, he should endeavour to make his patient comprehend that there would be danger in complying with his request, and he should endeavour to gain time until his patient has changed his mind, or that his state will allow of the administration of the medicine desired.*

12. Temperaments, which modify in so powerful a degree the progress and character of diseases, likewise merit a particular attention with regard to the therapeutical means employed. In strong and robust individuals, endowed with a sanguine temperament, the sanguineous evacuations, diluents, in a word, the antiphlogistic treatment is much oftener employed than in persons of a weak, and irritable constitution, and of a lymphatic and nervous temperament; in the last-mentioned cases, tonics and antispasmodics are more frequently administered. It will nevertheless be conceived, that this is far from being an invariable rule.†

13. Attention ought also to be paid to the effects of habit; and it should be remembered, that organs frequently submitted for any length of time to the influence of a medicinal substance, become so accustomed to it as to be insensible to its effects. This is forcibly exemplified, amongst other examples, in the enormous quantities of opium which certain individuals can take, without experiencing any immediate accidents, as is seen in numerous instances in the east. Therefore, when it is necessary to apply the same substance for a long time, the dose should be gradually increased for it to make any impression on the organs. It is especially in medicines which

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* Every patient, according to our English notions of liberty, is allowed to play the fool as much as he pleases. He may swallow two or two hundred of Morrison's pills should he think proper, and poison himself.

† Some physicians bleed every patient excessively. Every disorder or disease with them is inflammation. They have gone deservedly to the tomb of all the capulets.

act upon the nervous system that this phenomenon is remarkable. There are, on the contrary, some medicines, whose action is slow and gradual, which require some time for them to develope themselves, and their effects are not manifest until after they have been administered for a long time. Their effects are much less weakened by use than those whose actions are more prompt. Nevertheless, after some time, quantities may, without any danger, be administered, which, in the first instance, would have been followed by alarming symptoms.

14. In prescribing a medicine, the consideration of the circumstances which may tend to favour or modify its action should not be neglected. Thus, in administering a sudorific, the patient should be placed in a warm situation; because, if he is exposed to cold, diaphoresis will not be produced.

15. Before introducing a medicinal substance into the intestinal canal, the practitioner ought to examine attentively the pathological and physiological state of this organ, the nature and extent of the diseases of which it is the seat, &c.; for a medicine which would be inoffensive, and even salutary, if the stomach were in health, may become fatal if this organ is diseased; it is necessary in this case to associate the medicine with others which weaken its local action, or even abstain entirely from its use.*

I shall now proceed to examine the modes by which medicinal substances are made to act on the economy.

1. When medicines have only a decided action upon those organs with which they are put in contact, they ought, as far as is practicable, to be applied to the diseased part, at least, where it is not desirable to obtain general effects by revulsion; and in that case it is always a healthy part that ought to be acted on.

2. When the influence of a medicine can be propagated through continuity of organs, the nearest parts to those affected are to be acted on, in order that their effects may be as marked as possible; because the influence of these

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* The routine practice is to prescribe strong aperients or purgatives in all cases. This is a grievous error.

substances is as much less strong, as the parts to which they are applied are distant from those of which a change of their actual state is required.

3. Those medicines which act by sympathy are generally introduced into the stomach; because this organ has the most direct sympathetic connections with all other important organs.

4. When medicinal substances act through the absorption of their molecules, they are generally administered through the medium of the stomach. But they may sometimes be introduced into the economy, by putting them in contact with some other part of the mucous surface of the alimentary canal; it is on this account that enemata are sometimes administered, and frictions made on the gums, &c.

5. Formerly, advantage was taken of the absorbent power of the mucous membrane which covers the aerial passages, to cause the same result; and the patient was made to respire the vapour of those substances, under the influence of which it was desirable to bring him.

6. In fine, there are cases in which medicines are caused to penetrate into the economy by applying them to the skin. But as the presence of the epidermis is a powerful obstacle to the absorption of medicinal molecules, their action would be very slow, and even almost useless, if a simple application alone was pursued. To obviate this inconvenience, it is necessary to make them penetrate the pores of the epidermis, by means of frictions more or less violent, or by raising this membraneous layer to a certain extent, and thus putting them in immediate contact with the surface of the dermis or skin. The first of these methods, that of friction, has been for a long time known, and is called *iatraleptic*. M. Christien, of Montpellier, has much extolled it, and put it in practice with success in a great many cases. The second is named, by M. Lembert, the *methode endermique*, who, conjointly with M. Bailly, has made numerous experiments, at the hospitals of La Pitié and Cochin, in applying upon a blistered surface, different medicinal substances, capable of acting by absorption. The result of these experiments—repeated since by a great number of French and foreign practitioners—leaves no doubt of the efficacy of this mode of applying medicines, which

appears to be very advantageous when their irritating action is dreaded upon the mucous membrane of the gastro-intestinal canal, or when it is wished to prevent the alteration which the digestive faculties may produce in them. It would be, nevertheless, advisable to employ, in this manner, those medicines only which are susceptible of acting effectively in very small doses, such as morphia, strychnine, &c.

The knowledge of the doses in which medicines are administered, is called Posology; but it is impossible to determine them.

The doses in which medicines are administered, differ according to their nature and their degree of activity. It would be difficult to establish fixed rules in this respect, as experience alone must be our guide.* We shall only observe, that the doses of the same medicine ought to vary according to the effects that are wished to be produced, and according to the age, sex, and temperament, &c. of the patient.

The effects of a medicine frequently differ, according to the quantity in which it is administered. It is thus that the greater part of astringent, tonic, and exciting substances have only a local action, when given in small doses; whilst, on the contrary, in large doses, they extend their influence over the whole of the economy. Opium, taken in small quantities, is a very energetic sedative; in larger doses, it becomes excitant, and produces cerebral congestion when the dose administered is too large. Digitalis, in large doses, acts directly on the intestinal canal, as is proved by the vomiting and alvine evacuations which follow its administration. In smaller doses, on the contrary, its local effects are no longer observable, but are replaced by general phenomena, such as quickening the action of the heart, and augmenting the secretions, especially the urine. Some antimonial preparations are, according to the doses in which they are administered, alternately emetic, purgative, diaphoretic.

The doses of medicines ought always to be proportioned to the age and strength of the patient. It is worthy of observation, that, in general, the weaker a patient is, and the more under the adult age, the more characteristic are the effects of a determined quantity of a medicine. It therefore follows, that to obtain similar effects on an adult and an infant, very different doses must be employed.

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* All tables of doses are absurd; they merely mean, that the smallest quantity is prescribed. Ten times the amount is often given, according to the violence of the disease, or power of the constitution.

The following table, drawn up by Gaubius, may serve as a guide to young practitioners in the administration of active substances at the different epochs of life; although it should always be remembered, that this rule allows of deviation according to circumstances.*

For an adult where the dose is 1 drachm.

Under 1 year	1-15th to 1-12th.
2	1-8th.
3	1-6th.
4	1-4th.
7	1-3rd.
14	1-half.
20	2-3rds.
From 20 to 60	1

Above this age, the inverse gradation must be followed.

The constitution of women is, in general, less strong than that of men; it will therefore be seen, from what has been already said, that the doses administered to them must be less; but it would be impossible to state in what exact proportion.

The doses of medicines ought likewise to be modified according to the temperament and idiosyncrasy of the patient; for it will readily be conceived that a very irritable person, endowed with what is called a nervous temperament, could not, without inconvenience, bear the dose of certain medicines, of excitants, for example, which could be given with advantage, to one of a lymphatic constitution. It is, therefore, highly important to adapt the doses to different constitutions. There are certain individual dispositions, at first unknown in their nature, the whole of which form idiosyncrasy, and which prevent the same substances—given in the same doses, and under the same circumstances, from acting in the same manner, and with the same energy in all individuals. It is in this way, that a small quantity of opium will produce in some persons all the symptoms of narcotism, whilst in others it would act insensibly. Half an ounce of a neutral salt of any kind, in some cases, produces abundant evacuations, and even superpurgation; whilst, in other cases, two ounces of the same substance would have scarcely any effect.

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* The safest plan is to prescribe moderate and repeated doses, until the desired effect is produced.

In fine, the effects of medicines being modified by habit, as I have before observed, it is of importance to have regard to this consideration, as often as it is necessary to continue, for any length of time, the use of a medicinal substance, or when we wish to administer, in large doses, certain very energetic preparations. Some of our popular pharmacological writers, have given the preceding as their own, thinking that the old standard medical works are seldom seen. These authors are to be pitied, and ought to remember, "palmam qui meruit, ferat."

Following the precepts I have laid down, I think that every one will be enabled easily to modify the doses, according to the exigence of the case, and the observations he must have made individually in this respect.

Medicines are either simple or compound. Those are called simple which can be administered in such manner as nature offers them, or which are formed of one substance, of which the intimate nature may, in other respects, be more or less complex—such as ether, the acetate of morphia, &c. The second, on the contrary, are the result of a combination of several simple medicines.

Simple medicines in general ought to be preferred to compound; and, when recourse is had to the latter, simplicity should be sought after as much as possible. The following maxim ought always to be present in a practitioner's mind: *Superflua nunquam non nocent*, and those substances only should be united, whose reciprocal action and influence on the animal economy are well understood.

Medicinal substances are mixed together, or *compounded*, for the attainment of divers ends:—

First. To augment the action of the principal medicine which is intended to be exhibited. This may be attained: (A) in mixing different preparations of the same substance. When all the active principles of a medicine are not soluble in the same liquid, and when it cannot be administered in substance, recourse should be had to this kind of combination. It is in this manner that infusions and decoctions are made more active by the addition of a small portion of the tincture or extract of the same plant.

(B) In combining medicines of the same species, that is to say, those which taken separately produce the same effects, but with less energy than when combined. This augmentation of activity is only evident in a certain number of medicines. According to the observations of Valisniéri, twelve drachms of cassia produce a purgative effect almost equivalent to that of four ounces of manna. But if eight drachms of cassia and four of manna are united, the effects obtained are much more marked, and even may be said to be double. The mixture of diffusible aromatic substances is equally susceptible of modifying the action of each individually.

(C) In uniting a medicine with a substance of a different nature, which exercises no action on it, but which renders the economy in general, or the stomach, or any other organ, more sensible to its influence. It is much easier to prove this than to explain it; therefore I shall content myself with giving a few examples. The mixture of ipecacuanha and jalap render the purgative effects of the latter much more energetic. The action of certain purgatives is increased by the addition of a bitter. Cullen remarks, that, in mixing a bitter substance with an infusion of senna, the same effects would be obtained in administering a small dose of this purgative as in employing a large dose of it alone. The influence that opium has over mercury is likewise very remarkable. It appears in some cases, that after the general effects of mercury have completely ceased, they re-appear under the influence of opium.

Secondly. To diminish, or to correct in some degree, the too irritating effects of a medicine. This indication is fulfilled: (A) by mixing a medicine with another which augments or diminishes its solubility. It is by this means that the addition of a small quantity of an alkali diminishes the tendency of certain drastics to produce colic; and in mixing camboge with an insoluble substance, nausea is prevented, by rendering the solution more difficult.

(B) By its mixture with a substance susceptible of preserving the stomach, or the economy in general, from deleterious effects. There is a great number of substances which, when they irritate the intestinal canal too violently, cannot be absorbed, and are expelled without producing the desired effects. Squills and antimonial preparations, for example, do not act as diuretics or diaphoretics when they cause purging and alvine dejections. In such cases, it is necessary to know how to combine substances capable of remedying this local action, and of correcting such effects. Opium frequently fulfils this indication; at other times aromatic stimulants are used, or mucilaginous and emollient substances, which envelope, in some degree, the active ones, and thus diminish the local action which is dreaded.

Thirdly. To obtain, at the same time, the effects of two or more medicines:

(A) In employing substances which, though they act differently, produce frequently the same result when combined. To augment the secretion of urine, for example, medicines, whose modes of action on the economy are entirely different, are combined, such as calomel and squills. The former acts, as most mercurial preparations do, as an active absorbent; whilst the latter acts principally on the urinary organs.

(B) In combining substances of which the action is entirely different, and which are designed to fulfil several indications at the same time. It is with this view that purgatives are frequently united with antispasmodics, narcotics, tonics, mercurials, &c. The use of tonics often occasions constipation, and it is necessary to combine a purgative medicine to counterbalance this effect. In the treatment of ascites, and chronic dropsies in general, there are cases in which the practitioner finds it necessary to support the strength of his patient, while at the same time he causes abundant evacuations. This is effected by uniting tonics and excitants with drastic purgatives.

Fourthly. To obtain effects which, if taken separately, would not result: (A) In uniting medicines whose actions are essentially different, and which, by their combination, produce other effects than those they would have produced singly, without acting chemically on each other. This effect appears to me inexplicable; but examples of the kind are too numerous for a doubt to be entertained on the subject. We see that opium and ipecacuanha, administered together, produce neither the narcotic effects of the one, nor the emetic effects of the other, but act as a powerful diaphoretic.

(B) In combining substances which act chemically on each other, and which give rise to new compounds, or which render the active principles of one of them null. In making, for example, acetic acid act upon ammonia, a new product is formed, the action of which is very different from that of the two other bodies taken separately. In the anti-emetic potion of Rivière, citric acid is mixed with the carbonate of soda. This latter is decomposed by the citric acid, and disengages the carbonic acid which it contains.

(C) In mixing substances which augment or diminish the solubility of the principles which contain the medicinal properties. This indication may be fulfilled by the aid of substances which act either chemically or mechanically. Thus the tartaric acid, or cream of tartar, becomes more soluble, and, consequently, more active, by the addition of the acid of borax.

Fifthly. In fine, to give them a form more agreeable or efficacious. Substances mixed with medicines, with a view either to render their taste or odour less disagreeable to the patient, or to prevent a too prompt decomposition, or in order to facilitate their action, vary according to the nature of the medicines employed, their degree of solubility, the end proposed, and, to a certain point, the caprice of the patient. Nevertheless, a choice ought to be made of such as would not annul the efficacy of the principal medicines. We shall have occasion to revert to this subject hereafter.

Such are the different objects that are had in view, when a mixture of several simple medicines is made to form a compound. According to the effects that these different substances are wished to produce, they are called by the following names:—the *base*, the *adjuvant* or *auxiliary*, the *corrective*, and the *excipient* or *intermediate*. The base is the principal medicine; the adjuvants are those added to facilitate and accelerate its action; the correctives are destined to reduce the too energetic action of the base; the excipients serve as a vehicle in which it may be taken; and the intermediate, a kind of excipient, is intended to render it miscible in water.

It is often useless to employ at the same time the whole of these elements in the formation of a compound medicine. Many substances want no adjuvant to facilitate their action, and others are administered very well without any corrective, or even without any vehicle. It also frequently happens, that the same substance fulfils at the same time several of these indications. For example, the adjuvant may serve both as a corrective and a vehicle. These last considerations are so much the more important, as simplicity is one of the most essential conditions in the composition of medicines.

Pharmaceutical preparations are divided into two great classes.

First, *Officinal preparations*, that is to say, those whose composition is laid down in the pharmacopœias, and which are generally those kept in shops.

Second, *Magistral preparations* are those whose composition is indicated by the practitioner, and which the apothecary prepares from the formula given.

A *formula*, or pharmaceutical prescription, is the indication of the names and doses of substances which enter into the composition of a magistral preparation, to which is generally added instructions for its administration.

First. Clearness and conciseness are two essential conditions in writing prescriptions.

Second. They ought to be written in a legible hand, and in Latin, or perhaps in the vulgar language.*

Third. At the commencement of the first line, the sign ℞, or R, which is an abbreviation of the Latin word *recipe*, should be placed.

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* I do not assent to this doctrine, because patients would be horrified on being ordered the poisons, mercury, &c.

Fourth. Each substance should be indicated by its scientific or pharmaceutical name, according as the one or the other is more generally known, and less liable to be mistaken for any other. The names of medicines ought always to be placed under each other, taking care to put but one in the same line.

Fifth. The order of arranging them is of little importance; nevertheless it would be well to place the most active ingredients first.

Sixth. The quantity of the dose ought always to follow the name of the medicine, and be placed in the same line, leaving a small interval between them. The following signs are those which have been established by use:

℔	pound	12 ounces.
℥	ounce	8 drachms.
ʒ	drachm	3 scruples.
℈	scruple	20 grains.
gr.	grain	gtt. or gut. m. drop.
O	pint	16 fluid ounces.

The quantity of each of these weights is generally indicated by Roman cyphers. When the same dose of several different substances is used, they are united by a brace, and the letters ana, or āā are placed before the designation of the common quantity of all.

Seventh. The prescription should be ended by indicating the mode of the preparation of the medicine, and the manner of its administration. When the preparation presents nothing particular, it is merely necessary to write the letters F.S.A. *(fiat secundum artem)*. In other cases, the mode of preparation, should be indicated as briefly as possible; then it is to be dated and signed with the initials of a physician, and the name of a surgeon.

Before examining the different pharmaceutical preparations, and the forms under which they are administered, I think it necessary to call the reader's attention to the errors that may be committed in compounding magistral preparations; errors which arise from three principal sources, namely:

First. The association of substances which do not combine, or do not form compositions of a proper consistence. Many substances, insoluble in water, cannot be administered in a liquid form, without the aid of an *intermediate*, such as a mucilaginous or albuminous substance, which keeps their molecules in suspension. If the *intermediate* is neglected, the formula will not accomplish the desired effects. This would be the case in ordering camphor and the balsam of capaiba in pills, without adding a proper *intermediate;* because these two substances, mixed together, would form a syrupy consistence, and it would be impossible to make them into pills, unless a small quantity of the coagulated yolk of an egg was added.

Secondly. The association of substances which mutually decompose each other, by which means their action is changed, or entirely destroyed. Every time that two salts are mixed in solution, which, by an exchange of their bases or acids, may be formed into one soluble and one insoluble salt, or into two insoluble salts, a decomposition necessarily takes place.

Thirdly. The method indicated for the preparation of medicines is insufficient to attain the end proposed, or is of a nature to change or destroy the action of some of the substances employed. Certain medicines are only soluble in alcohol, ether, or oil; and others are only soluble with the aid of caloric; and some lose their active principles by ebullition. It is therefore of the highest importance not to order in an infusion of cold water a substance which is only soluble in warm, and not to order a decoction of medicines which ebullition alters, and which lose their virtue by this process, &c.

The forms under which medicines are administered vary according to the nature of the substances, and the use that is wished to be made of them. These forms are solid, soft, liquid, and gaseous, and most of the pharmaceutical preparations have a special destination; some are always employed externally, and others internally, whilst there is a certain number which serves at the same time both for external and internal uses.

In the preceding remarks, I have offered but a very brief outline of those principles which guide scientific practitioners in prescribing medicines; as I consider this information of great importance to students and junior practitioners. I could not treat of them more fully in a work of this kind; but refer the reader to the excellent PHARMACOLOGIA of Dr. Paris, in which he will find the most ample account of this branch of medical science in our language.

It has been truly observed, that disease terminates in health, death, or another disease. I may observe, that, when the period of convalescence arrives, it must be managed with judgment and skill. Relapses are more dangerous than the original disease, as the constitution is generally too much enfeebled when they occur. The greatest attention must therefore be paid to diet, regimen, and other hygienic precepts, and curative means. When death approaches, the medical practitioner has certain duties to perform which are indispensable, and have been already described.

Duty of Physicians to the Dying.—If a physician have judgment, and all the other requisites essential to his character, if he take a true interest in the health of the sick, he will afford consolation to the dying. The respect due to humanity, and to the dying, imposes the obligation of consoling those departing from life, while their senses remain; and in reminding them of a better world, in which suffering and sorrow will be no more. We ought not to quit a patient in danger, unless with a calm and serene air. When the fatal hour is about to strike, the physician is bound to recommend the consolations of religion. The sublime doctrines of Christianity calm agitation, and smooth the avenue of death. Imprudent zeal, on the contrary, has often hastened the fatal event.

It is also right to inform the patient, his near relatives, or the clergyman who attends him, of the necessity of arranging his affairs, so as to secure his family their rights, and prevent litigation. This is a delicate affair; but it must not be forgotten by the medical attendant. Let him also take care that his patient, "is of sound mind, memory, and recollection, when disposing of his property." Instances have fallen under my own observation, in which testators did not really know what they were signing; and I am convinced that such wills would be annulled, if contested.

PART II.

LAWS RELATING TO THE MEDICAL PROFESSION.

CHAPTER I.

LAWS RELATING TO THE MEDICAL PROFESSION IN GREAT BRITAIN AND IRELAND.

After a great deal of research and labour, I had compiled and arranged the materials for this article, when my labour was lost, by the publication of Mr. Willcock, which then issued from the press. It affords me much gratification, that most of the information I had gained is now placed before me, authenticated by the authority of a talented barrister, of a gentleman quite free from partiality towards any of the colleges, and who instructs the legal as well as the medical profession. His work is one of deep interest to medical practitioners, as it shews that the London Colleges of Physicians and Surgeons, and the Apothecaries' Company, have full power to correct all the abuses which now degrade our profession. In fact, Mr. Willcock's treatise contains much more information than the conjoint production of Dr. Paris and Mr. Fonblanque, and illustrates many important points of medical police, unnoticed by the latter writers. As this excellent and instructive work gives the fullest account of the laws relating to the practice of medicine in England, it would be superfluous in me to execute my original design; and I shall therefore content myself with condensing the chief points of interest to my profession, while I shall enumerate the laws relating to the duties of medical practitioners in judicial investigations, which are omitted by this author.

It must be superfluous to enumerate the ancient orders of the medical profession, including regular and irregular practitioners, neither is it necessary to describe the present orders of the faculty, which are generally known in every civilized country. Mr. Willcock devotes his first and second chapters to these topics, and next details the whole of the statutes and patents relative to physicians, surgeons, and apothecaries, as also those of a general nature which affect the profession.* After a luminous commentary on every act and charter, and on every decision relative to medical men, he maintains that the law is at present as follows:—

Physicians.—Any person who is not a member, fellow, or licentiate of the Royal College of Physicians in London, and who practises physic in or within seven miles thereof, is liable to a penalty of £5. a month, or if in the country, unless he is a graduate of Oxford or Cambridge. Every person so practising, in any part of the kingdom, even though his practice was not attended with serious consequences, is also guilty of a misdemeanour at common law. These laws do not apply to a person who may happen to administer medicine to the best of his ability, to such as may be unable to obtain the assistance of a regular practitioner.

" The penalty of £5. is recoverable from such only as have continued their practice for one month at least, and to prove this it is necessary to show, that the defendant has continued to hold himself forth to the public as a physician, *for one entire month*, within the precinct of London, if the proceeding be instituted by the college, or in the country, if it be instituted by the common informer,† and to show some instances, or, at least one instance of his actual practice within that period, from which it may appear, that such practice was in the character of a physician. The word physician by no means implies the necessity of showing that the defendant was, or assumed to be, a graduate in physic, the statute aims against such as were not graduates in physic."

Mr. Willcock respectfully questions the decision in Dr. Harrison's case, and denies its legality. The verdict was given on the ground that the case was surgical, but the judge considered the evidence sufficient to show, that the Doctor had professed and acted as a physician. " But with the utmost deference to so high and impartial an authority, I venture to submit that the earlier cases, and cases decided upon argument in full court, but which seem not to have been noticed in arguing Dr. Harrison's case, are directly and clearly contrary." Two decisions of the King's Bench and one of the Common Pleas were made upon the point, besides which the Statute 32 Hen. VIII., has expressly declared, that surgery is a special member of physic, and within the legitimate range of the physician's vocation. " My assumption is, that an action will lie at the suit of the college, although the practice proved be surgical, unless the defendant by his plea, show that he is legally entitled to practise as a surgeon, by specially setting forth his license by the College of Surgeons."

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* There is every reason to conclude, that the Medical Reform Law, which will be introduced in a few weeks by Mr. Warburton to Parliament, will totally change and improve the existing charters and statutes, and I shall therefore quote them briefly, as I am satisfied they will, in a great measure, be repealed.

† The college must prove, that he practised as a physician for twenty-eight days in succession, twenty-seven and three-quarters will not do, and such prosecutions never succeed, and therefore are not attempted of late.

By the original charter, and by the Statute 32 Hen. VIII., it is evident that every person of the same faculty, of or in London, was entitled to be admitted into the association of commons and fellows. But as to the persons who should afterwards enjoy that distinction, the original charter and all subsequent statutes are silent. pp. 34, 44.

" It is directly in the teeth of the statute, that no persons can become candidates, who are not graduates of Oxford or Cambridge."*

Surgeons.—" There is no doubt that the surgeon can make and compound all medicines and medicaments applicable to the diseases, submitted to the superintendance of his branch of the faculty. And he may either administer them himself, or prescribe what he thinks proper to be administered to others." By the 3rd Hen. VIII. persons can be punished for practising surgery in any part of the kingdom, except in London, or within seven miles thereof. None can practise in or within seven miles of London, until examined and admitted by the College of Surgeons; but there may be two classes of surgeons throughout the rest of the kingdom.

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* Ten thousand absurdities were shewn to exist in these acts before the Parliamentary Committee of 1834. Among these were, that the college made a nobleman and a bishop fellows of their body!

First, the members of the college who may practise in every part of his Majesty's dominions; and secondly, the surgeons, licensed under the 3rd Hen. VIII. who may practise within any particular diocese in which they are licensed, except in London and Westminster, and within seven miles around these cities.

" Every person, except a physician, is liable to be fined £5. a month, unless a member of the college, who practises in London or Westminister, by action in any court held in the city of London. The same penalty may be enforced for practice in the country, unless the person be a member of the college, or licensed by the ordinary of the diocese, or in his absence by the vicar-general (3rd Hen. VIII.) and the proceedings are the same as against unqualified physicians."

It has been asserted, that the College had no power whatever, and ceased to have an existence in law, but a little reflection would have convinced those who entertained this opinion, that such an influential body could not fail to procure sufficient power from the legislature, if such were necessary.

Apothecaries.—" The proper practice of an apothecary," says Mr. Willcock, *op. cit.* " consists in preparing with exactness, and dispensing such medicines as may be directed for the sick, by any physician lawfully licensed to practise physic, by the president and commonalty of the faculty of physic in London, or by either of the two universities of Oxford or Cambridge, and in applying or administering the same. They are also at liberty to administer medicine of their own authority, and without the advice of a physician. It is not usual for them to prescribe medicine to be prepared and supplied by others, no person is bound to prepare such medicine; and I am not aware of any penalty incurred by compounding it."

The Company of Apothecaries consists of one master, two wardens, and twenty-two assistants, and no man can be elected to any of these offices, who has not previously been a member of the society for ten years. The master, wardens, or court of examiners, may appoint five apothecaries in any county of England and Wales, except in or within thirty miles of London, to examine assistants to apothecaries, but no person is eligible who has not been an apothecary for ten years.

No person can practise as an apothecary in England or Wales, until he has been examined by the court of examiners appointed by the company of apothecaries, and has received their certificate of his being duly qualified to practise, unless he was in practice upon the 12th of July, 1815, and also upon the 1st of August, 1815, and no person can claim to be examined until he is twenty-one years of age, has served five years to an apothecary, and produced testimonials to the satisfaction of the court, of a sufficient medical education, and of good moral conduct. Any falsified certificate or statement renders the license void in law, and subjects the person who makes or offers it to fine and imprisonment. The court can decide what is a sufficient medical education, though they cannot, in this respect, make rules wholly unreasonable. The applicant for examination is required by the statute to give notice to the clerk of the society, on the Monday previous to the day of examination, and to deposit his testimonials at the same time with the beadle. The day of examination is every Thursday, at half-past four o'clock. No person can act as assistant unless approved of by the court of examiners, or by the country examiners.* The sum of ten guineas is paid for a license to practise as an apothecary in London, and six guineas for a license to practise in the country, or within ten miles of London, and the difference of four guineas must be paid if such person settle in London. The sum of two guineas is charged on the certificate of any assistant to an apothecary.

Chemists and Druggists.—The right of chemists and druggists to prepare and dispense medicines, according to physicians' prescriptions, has not as yet been brought into question. "And as apothecaries have in the course of time established as a right, what was at first considered an encroachment on the department of the physician, the administering of medicine to the sick of their own authority; so the druggists seem to have acquired, by general acquiescence, a right of compounding medicines according to the prescription of physicians, which was certainly at first an infringement on the privileges of apothecaries." Willcock, *op. cit.* The 55th Geo. III. has expressly secured the rights of chemists and druggists.

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* This is a dead letter. There is not an assistant, out of many thousands who complies with this enactment.

Accoucheurs and Midwives.—There is no restriction placed on affording assistance to parturient women; but it is illegal to treat diseases antecedent to, or consequent upon, child-birth.

Administration of Medicine gratuitously, is not a violation of any law relative to the medical profession.

Unqualified Apothecaries.—A penalty of £20. is imposed on any person practising as an apothecary in England and Wales, without a certificate from the court of examiners; unless such person had acted as an apothecary on or before the 1st of August, 1815. This fine is recoverable in the courts of record, and the company must prove one act of practice. The penalty of £5. for acting as assistants, is recoverable by an action of debt, brought by the common informer or the company, but not by the latter in their corporate capacity. The Apothecaries' Society proved, before the parliamentary committee, that their act is most defective. They cannot prosecute one delinquent in a thousand, and wish the law amended, or that prosecutions were made by others, for example, the common informer.

Malpractice in Medicine.—There are four kinds of malpractice, which relate to physicians, surgeons, or apothecaries.

1. Wilful malpractice, which has for its object the destruction or injury of the patient, or of a child of which a woman is pregnant. If death or bodily injury ensue, the accused is guilty of murder or felony. There is only one case in which the premature expulsion of the fœtus is warrantable, and that is, when the woman is so deformed, that the infant cannot be born alive at the full period. Here the operation is performed to save the life of the infant and mother, though the law does not justify it.—*Cabinet Lawyer*, 1835.

By 43 Geo. III. c. 58, Lord Ellenborough's Act, it is enacted:

"Administering drugs, or using any other contrivance to destroy a living infant, unborn, is felony, not only in the person who actually perpetrates the offence, but in those who counsel and assist therein. And, though the mother is not quick with child, to attempt to procure an abortion, is punishable with fine, imprisonment, whipping, or transportation, for any period less than fourteen years. Women concealing the birth of an illegitimate child are liable to two years' imprisonment."

The provisions of this statute are extended by Lord Lansdowne's Act, 9 Geo. IV. c. 31, June, 1828:

"Using any poison or noxious thing, or any instrument, to procure the miscarriage of any woman quick with child, or counselling or aiding therein, is felony, punishable with death; the same offence as to a woman not quick with child, or proved to be such, is felony, punishable by transportation for not exceeding fourteen, nor less than seven years, or imprisonment with or without hard labour not exceeding three years, to which imprisonment (if the court think fit) once, twice, or thrice, public or private whipping may be superadded.

"Concealing the birth of a child by burial of the dead body or otherwise, is a misdemeanour, punishable with imprisonment for any term not exceeding two years; and it shall not be necessary to prove whether the child died before, at, or after its birth; provided, that if any woman tried for the murder of her child shall be acquitted, the jury may find, in case it shall so appear in evidence, that she was delivered of a child, and attempted to conceal the birth, upon which the court may pass such sentence, as if she had been convicted upon an indictment for the concealment of the birth." s. 14.

"Every person convicted of the abominable crime of buggery, committed either with mankind or with any animal, shall suffer death as a felon." s. 15.

"Every person convicted of the crime of rape shall suffer death as a felon." s. 16.

"Unlawful and carnal knowledge of any girl under ten years of age is punishable with death; above ten, and under twelve, with imprisonment, with or without hard labour, for such term as the court shall award." s. 17.

"It shall not be necessary, in any of the four preceding cases, to prove the actual emission of seed in order to constitute a carnal knowledge, but the carnal knowledge shall be deemed complete upon proof of penetration only." s. 18.*

2. Avaricious mal-practice has for its object the lucre of the practitioner, who employs improper drugs or treatment to the injury of the health of the sick. This prevails among druggists and low apothecaries, who substitute one drug for another; and constitutes a cheat at common law, and is punishable by fine and imprisonment. The discovery and correction of this abuse is confided to the medical corporations, which never attend to it.

3. Negligent mal-practice is, where there is no criminal or dishonest object, but gross neglect of that attention which the patient requires. This is a misdemeanor at common law.

4. Ignorant mal-practice, is that which has for its object the practice of medicine, surgery, or pharmacy, without due information and legal authority. "This is a great misdemeanour at common law, whether in a licensed or unlicensed practitioner." The party injured suffers a private wrong, and may bring an action for damages adequate to the loss he has sustained.

The censors of the college of Physicians have full power to correct defaults in the exercise of the profession, which includes physic, surgery, and pharmacy, in London, and within seven miles thereof, and this power may be exerted over all graduates in physic of any university, or whether they do or do not assume the style of doctor, or the character of a physician, *Op. cit.* It is necessary that the mal-practice should be in physic, but it is apprehended that this would include surgery and pharmacy. The censors are to determine what is, or what is not mal-practice, and the unfitness or unsoundness of the medicine prescribed. They may fine or imprison, or fine and imprison the party; or if they impose a fine alone, they may enforce payment of it by imprisonment The fine must not exceed £20. "They still retain," says Mr. Willcock, "the authority, and in the present state of the metropolis, they ought to resume the exercise of it; and they may, in the discharge of their duties, with impartiality and moderation, confidently rely upon the succour of the courts of Westminster. A court of justice cannot be obsolete by the neglect of its judges; the present censors may exercise these powers as fully as if they had been daily exercised by their predecessors, from the time of Henry VIII.; not only may they receive their jurisdiction, but they are bound to revive it; insomuch that, should they reject a charge of mal-practice preferred by any person, the court of King's Bench, would, by mandamus, compel them to convene, and to hear and decide upon the accusation."*

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* See Violation of Women for defects in this Act.

It appears, from the same authority, that the president and vice-presidents of the Royal College of Surgeons in London, have full power to correct mal-practice in surgery, by members, or irregulars, and the observations made on the power and duty of the censors of the College of Physicians, are equally applicable to them.† The same authority also declares, that the Apothecaries' company have no power to appoint inspectors of shops, or to fine persons for keeping bad drugs; at least, doubts may be entertained upon this point. The company has such power, and proved it before the parliamentary committee.

Civil responsibility of Medical Practitioners.—An action will lie against a physician, surgeon, apothecary, and every other person professing to cure wounds or diseases, for every injury that may arise from his want of skill or want of attention. An action will also lie against a physician, who makes experiments for any injury produced by them, unless the experimenter informs the patient of his intention, and obtains his consent.

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* The College produced abundant evidence before the parliamentary committee, 1834, from the opinions of numerous judges, directly contrary to the preceding conclusion.

† This was totally disproved before the parliamentary committee. The Judges decided, over and over again, that the College had no such power. —*See Mr. Guthrie's Evidence.*

If a physician, surgeon, apothecary, or other medical practitioner, undertake the cure of any wound or disease, and, by neglect or ignorance, the party is not cured, or suffers materially in his health, such medical attendant is liable to damages in an action of trespass on the case; but the person must be a common surgeon, or one who makes public profession of such business as surgeon, apothecary, &c.; for otherwise it was the plaintiff's own folly to trust to an unskilful person, unless such person expressly undertook the cure, and then the action may be maintained against him also.

An action will lie against a surgeon for any deviation from the established mode—as trying a new instrument — if it injure the patient. Slater *v.* Baker and Stapleton, 2 Wils. 359. The defendants disunited a callus of a fractured leg by a new instrument. Damages £500. Verdict confirmed by the whole Court.

An action will lie against a surgeon for gross ignorance of his profession, as well as for negligence and carelessness. Seare *v.* Prentice. 8 East's R. 348. Query the authority of this case? In the case of Neale *v.* Pettigrew, the plaintiff dislocated his arm; it was badly set by the apprentice of defendant, for which the master suffered damages £800.

Remuneration of Medical Practitioners. — A physician cannot maintain an action for his fees, for they are honorary and not demandable of right, and it is much more for the credit and rank of that body (the physicians), and perhaps for their benefit also, that they should be so considered; "and I much doubt," says Lord Kenyon, "whether they themselves would not altogether disclaim such a right as would place them upon a much less respectable footing in society than that which they at present hold." Chorley *v.* Bolcot, 4 T. R. 37. It was contended in this case, that there was no authority in the books for placing physicians' and barristers' fees on the same footing, the regulations with regard to barristers being founded on the ground of public policy, as appears in Tacitus.

But though a physician cannot recover his fees by a process of law, yet *pro concilio impenso et impendendo* these are a good and valuable consideration for an annuity. 9 W. Rep. 50, 7 Co. Rep. 10, 28.

If a bond, bill, or note, were given for medical attendances, the consideration would be good, though the original fees could not be recovered.

If a medical practitioner who has no diploma, pass himself off as a physician, he cannot maintain an action for his fees Lipscombe *v.* Holmes. 2 Camp. 441. Though as a surgeon he might have recovered compensation ; and even if he were no regular surgeon, he could recover in an action of assumpsit. Gremaire *v.* Le Clerc. Bois Valor, 2 Camp. 144. But query the authority of this case.

When there is any promise, a physician may recover on a *quantum meruit.* Shepherd *v.* Edwards. Hill 11, Jac. II., Croke 370. The plaintiff here declared he was a physician and surgeon, had cured the defendant of a fistula, and had judgment; but query, did not he sue as a surgeon? But in Dale *v.* Copping. Bulst. p. 1, 39, the promise of an infant to pay a certain sum to the physician to cure him of epilepsy was a contract and held binding.*

But can a doctor of medicine, who is not a member of the London College of Physicians, or a graduate of either of the English universities, recover as a physician unless on a promise, which amounts to a contract?

The Scotch and Irish colleges of physic and surgery are corporations not confirmed by law, and their graduates or licentiates are not allowed to practise in England unless they be re-examined by the London College of Physicians. But the common law of England extends to Ireland. It would be prudent, then, for all medical men to have a verbal or written promise, a bond, bill, or note, requesting their attendance, in order to entitle them to recover. Some recent decisions of importance took place in Ireland on the recovery of medical compensation, which show the unsettled state of the law on the subject.

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* Elements of Medical Jurisprudence by Paris and Fonblanque, vol. i. 1823.

A case was decided at the Kilkenny summer assizes, 1824, before Mr. Justice Johnson, one of the judges of the Common Pleas; it was that of Ryan *v.* Gorman. The plaintiff was a doctor of medicine of Edinburgh, and a surgeon of the Edinburgh and London Colleges, who attended defendant and his family for several weeks during fever, at the request of defendant's wife, who promised him the ordinary remuneration as a physician, as also did defendant. He performed no manual operation, except the removal of a blister, which was not within the province of a surgeon. It was contended for defendant, that as plaintiff acted as physician, and the disease being a medical one, he could not recover; but the court decided that the promise was binding, and on being handed the report of the case of Sheppard *v.* Hill, above quoted, and also Dale *v.* Copping, gave a verdict to plaintiff on a *quantum meruit.*

A similar case, if correctly reported, was differently decided at the Clonmell spring assizes, 1826, before Mr. Justice Moore, of the same court. It was that of Kelly *v.* Latham. The plaintiff, a physician and surgeon, attended the defendant's mother, who sent for him, and promised to pay him when he was able. The disease was a medical one —consumption. On the last admission, "Mr. Doherty, now Chief Justice of the Common Pleas in Ireland, called for a nonsuit on the ground, that the plaintiff could not recover for his attendance in a case purely medical." Mr. Serjeant Lloyd observed, that whatever capacity he acted in, whether physician, surgeon, or apothecary, he should be paid. "The jury," said his lordship, "have to try whether Mr. Latham employed Dr. Kelly generally as a medical practitioner, without any reference to his being a physician or surgeon, and the evidence to what Dr. Kelly was employed for. A verdict was found for the defendant, with 6d. costs.

Surgeons. — A surgeon is entitled to recover reasonable remuneration for his care, attendances, skill, labour, medicines, and applications in surgical cases, but not if he put his attendances in the character of a physician, either by prescribing as a physician, or assuming to hold the degree of doctor in medicine, or by sending in his account with blanks opposite to the statement of his services; for, in the former case, he has relinquished the character of a surgeon, and, assuming to be a physician, the court will not allow him to put off that assumed character, merely to entitle him to that remedy which he has relinquished by his illegal act and affectation of dignity; and, having left the amount, in the latter case, to the discretion of the patient, he must be content with what may be paid. Willcock, *op. cit.* The reasonableness of a surgeon's charges will be decided by the jury. He will be allowed for his medicines, when such are used as are within his proper province. But if he infringe on the physician or apothecary, his conduct being illegal, he has no remedy for the recovery of remuneration. *ib.*

Apothecaries.—An apothecary may charge for his attendances, provided he only charge the intrinsic value for his medicines. Handy *v.* Henson, *op. cit.* This has been the case in Ireland under the Apothecaries' act.

Protection of Medical Character.—If a man libels a physician, by saying Dr. — is a bad physcian or doctor, or employed mala-praxis, the slander admits the professional qualification, and legal evidence of his qualification will not be required.—4 T. R. 366. Smith *v.* Taylor, 1 N. R. 196. Phil. on Evi. v. 2, p. 154. But where the slander denies qualification, legal proof must be given. *op. cit.* 155. The degree of doctor of physic may be proved by the original book of the university or corporation, which contains an entry of the degree having beeen conferred; or it may be proved by an examined copy of this entry. Moises *v.* Thornton, 8 T. R. 303, 307. Or, if the medium of proof is a diploma of a university, bearing its seal, the instrument must be proved by legal evidence. If the written instrument be produced as the original act of the university which conferred the degree, it must be proved that the seal affixed, is the seal of the university, which may be done by any one who knows it to be such. S. C. 307. If the instrument produced is a copy of the original act of the university, it must be proved in the usual way, as a copy for the university, cannot, under their seal, give evidence that the plaintiff had taken such a degree. *Phillips on Evidence.*

Physicians.—By the 14th and 15th Henry VIII. the king's charter for incorporating the College of Physicians of London is confirmed; they are to choose a president, and have perpetual succession, a common seal, and ability to purchase land and make bye-laws. Eight of the chiefs of the college are to be called elects, who, from among themselves, are to choose a president yearly.

Physicians in England shall be examined by the College, and have testimonial letters from the president, and three elects, unless they be graduate physicians of Oxford or Cambridge. Physicians practising in London, or within seven miles, without being approved, forfeit £5; and, in any other part, unless approved by the bishop of the diocese, they are subject to the like penalty.*

By the 32 Hen. VIII. c. 40, four physicians shall be chosen by the College to search apothecaries' wares, and, in company with the warden of the mystery of apothecaries, may destroy adulterated drugs. Apothecaries refusing to be searched forfeit £5; and physicians to act, 40*s.* †

Physicians may practise surgery in London.

The fees of a physician, like those of a lawyer, are honorary, and not demandable of right; consequently, a physician cannot maintain an action for them, 4 T. R. 317; unless he has been promised the usual remuneration. (Vide p. 180.)

Surgeons.—By the 32 Henry VIII. the barbers and surgeons were incorporated into one company; but, at the same time, a distinct line of division was drawn between the practice of the two branches of the profession. By this act, no person practising the art of barbery is to intermeddle with that of surgery, except as to drawing of teeth, which barbers may continue to do as before; and, on the other hand, no person devoting himself to surgery, is to exercise what is pithily called "the feat or craft" of shaving.

By the 18 Geo. II. the union of surgeons and barbers of London is dissolved, and the surgeons of London were made a separate corporation, with power to enjoy the same privileges as by former acts or grants.

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* This law is a dead letter, and never enforced.

† This inspection is at present a farce. The College and Apothecaries Society never punish delinquents.

Candidates to serve as surgeons in the army or navy shall be examined by the Surgeons' company.

By the 25 Geo. II. the bodies of murderers, convicted and executed in London or Middlesex, shall be delivered to Surgeons' Hall; and, in any other county, to such place as the judge shall direct.

By the 34th & 35th Henry VIII. any subject of the king, having knowledge of the nature of herbs, may minister to any outward sore, wound, or disease.

An action on the case lies against a surgeon for gross ignorance and want of skill in his profession, as well as for negligence and carelessness, to the injury of a patient. Seare *v.* Prentice, 8 E. R. 348.

Apothecaries.—Apothecaries were originally associated with the grocers, but obtained a separate charter of incorporation from James I. in 1606.

By the 6 Will. III. c. 4, apothecaries free of the company in London, practising there, or within seven miles, are exempt from parochial offices, and from serving on juries, by producing a testimonial of their freedom. Apothecaries in other parts, brought up in such art, or having served an apprenticeship of seven years, are also exempted.

In the session of 1815, an important act, the 55 Geo. III. c. 194, passed, for regulating the practice of apothecaries through England and Wales. By this act, the masters and wardens of the Apothecaries' company, or persons appointed by them, may enter the shop of apothecaries, and examine drugs, and impose and levy fines for such as are unwholesome or adulterated. Penalty for the first offence, £5; for the second, £10; for the third, and every subsequent offence, £20. (Vide ante, p. 182.)

Any apothecary refusing to compound, or unfaithfully compounding the prescription of a regular physician, is liable to be fined £5; and for a third offence of the same kind, forfeit his certificate.

By the same act, amended by the 6 Geo. IV. c. 133, no apothecary, after the 1st of August, 1815 (except persons in actual practice on or before that period), is to practise, unless he has received a certificate of being duly qualified. No person can be admitted to be examined unless he be twenty-one years of age, and have served an apprenticeship of, at least, five years, with an apothecary or a surgeon. Penalty for acting without certificate, £10.; or if only an assistant, £5.

By the same acts, no apothecary shall be allowed to recover any charge claimed by him in any court of law, unless he was in actual practice on or before the 1st August, 1815, or that he has obtained a certificate to practise as an apothecary.

By the 6 Geo. IV. surgeons in the navy and army, and apothecaries in the army, might practise without a certificate from the court of examiners, or without having been in actual practice prior to 1st August, 1815. This act ceased at the end of a year, and was opposed by Lord Brougham, as Parliamentary Advocate for the Apothecaries' Company.

In the constructions by the courts under these acts, it is held that an apothecary who claims an exemption, on account of having practised prior to the 1st August, must have actually exercised his proper vocation—namely, the making up of a physician's prescription; without this, unless he has received a certificate, he cannot recover for medicines. Apothecaries' Company, *v.* Waburton, 3 B. & A. 40.

In an action to recover the amount of an apothecary's bill, the plaintiff, who proves a certificate from the Society of Apothecaries, need not also prove an apprenticeship served. Sherwin *v.* Smith, 1 Bing. 204.

The acts do not extend to chemists and druggists.

Privileges of Medical Men.—Physicians who are licensed by the Royal College in London, are exempt from serving on juries or all inquests whatever, but this exemption does not extend to graduates of the universities. 14 Hen. VIII. 6 Geo. IV.

The members of the Royal Colleges of Surgeons in London, Dublin, and Edinburgh, when in actual practice, are exempt from serving on juries. 6 Geo. IV. Apothecaries are also exempt by this statute. Fellows and licentiates of the College of Physicians, regular surgeons and apothecaries, are exempt from watch, ward, constablewick, and the other offices of the city of London, and from bearing arms. 32 Hen. 8. 1 Geo. IV.

Privileges in Respect of Insane Persons.—No person,* except a parish pauper,† can be admitted into any house kept for the reception of insane persons in England, without a certificate, bearing date not more than fourteen days before such admission, and signed by two medical practitioners, each of whom must be a physician, surgeon, or apothecary,‡ unless any special circumstance have prevented the patient being repeatedly visited by two such practitioners, in which case he may be admitted on the certificate of one practitioner, but such certificate must be signed by some other medical practitioner, within seven days after the patient's admission.§ The certificate must state the patient is a fit person to be confined, the day on which he has been examined, the name and abode of the person who directed the examination, the relationship or connection of such person and the patient; the name, age, residence, and former occupation of the patient; the asylum, if any, in which he was previously confined; and whether he has been found a lunatic or of unsound mind, under a commission issued by the Lord Chancellor, Lord Keeper, or Commissioners of the Great Seal; or, if any such particulars cannot be inserted, the special circumstances preventing such insertion must be stated, also if only one medical man has certified, 9 Geo. IV. c. 41. By the same act, any medical man certifying without having examined the patient, is guilty of a misdemeanour, as also the person receiving the patient; and no practitioner who is proprietor or part proprietor, or attendant of a house for reception of lunatics, can certify in a case connected with such circumstances.

Every establishment containing one hundred patients must have a resident physician, surgeon, or apothecary, and if it does not contain so many, it must be visited twice a week by a physician, surgeon, or apothecary, unless it is kept by a regular medical practitioner; and the medical attendant must report to the keeper the condition of the house, and the state of the patients' health, and must, once a month, enter the same in a book, in a form prescribed by the act.

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* 9 Geo. 4. c. 41. † 9 Geo. 4. c. 40. ‡ Ibid. § Ibid.

The same certificate is required for committing an insane person to a private asylum, public hospital, or other charitable institution, except Bethlehem Hospital, the Military and Naval Hospitals, and the Lunatic Asylums, established under 48 Geo. 3, or 9 Geo. 4.

Commissioners are appointed in London and Middlesex to grant licenses, and examine into the state of lunatic asylums. The act requires that some of the commissioners should be medical men; and these have never endeavoured to improve the treatment of the insane. They are appointed by interest, and need have no knowledge of the nature or treatment of insanity. In England, no medical man can be employed in any of the public services unless a member of the colleges, universities, or apothecaries' company. The governors of some public institutions adopt the same provisions. The following acts relate to the appointment of medical men to public offices:—43 Geo. 3, c. 90, 53 Geo. 3, c. 65, and 11 Geo. 4, and 1 Will. 4, to militia men; 4 Geo. 4, c. 64, and 4 Geo. 4, c. 69, to prisons; 6 Geo. 4, c. 80, and 30 Geo. 3, c. 49, to workhouses; 43 Geo. 3. c. 56, to ships carrying fifty persons. The surgeon, in the last case, may be a member of the London, Dublin, or Edinburgh colleges, and must be provided with a medicine chest. He must keep a journal, containing a true and correct account of every thing relative to the food, health, disease, and mortality of the ship's crew, in a form prescribed by the act, under a penalty of £100. The bedding of each passenger must be aired daily upon deck, if the weather permit, and the vessel must be fumigated with vinegar at least twice a week, under a penalty of £20. for each neglect.

The following patents and statutes relate to the medical profession in England, according to Mr. Willcock:—

Statutes—Physicians. 9 Hen. 5, 22 Hen. 6, 19 Hen. 7, 3, 5, 14, 15, and 32 Hen. 8, 1 Mar., 3 Jac. 1, 10 Geo. 1, 6 & 10 Geo. 4.

Surgeons. 3, 5, 32, 33, 34, 35 Hen. 8, 18 Geo. 2, 6 Geo. 4.

Apothecaries. 32 Hen. 8, 1 Mar. 6, 7 Will., 10 Geo. 1, 55 Geo. 3, 6 Geo. 4.

General Statutes. 5 Hen. 4, 33 Hen. 8, 1 Ed. 6, 1 Mar. 5 Eliz. 2 Jac. 1, 8, 9 Anne, 9, 16 Geo. 2, 42, 43 Geo. 3, 6, 9 Geo. 4.

Patents.—Physicians. 32 Hen. 6, 7 Eliz., 15 Jac. 1, 15 Car. 2.

Surgeons. 3, 4 Hen. 5, 25 Hen. 6, 1 Edw. 4, 15, 19 Hen. 7, 2, 3 Hen. 8, 2 Jac. 1, 5 Car. 1, 40 Geo. 3, 3 Geo. 4.

Apothecaries. 19 Edw. 3.; 20, 27, 30, 34, 35 Hen. 6. 13 Jac. 1.

I shall now add the statutes and charters relative to the profession in Scotland and Ireland.

Scotland.—The universities and college of physicians of Scotland are incorporations, and as far as my research enables me to state, are not confirmed by acts of parliament, with the exception of the Royal College of Surgeons in Edinburgh. The college of surgeons was incorporated in 1505, and afterwards confirmed by numerous statutes. This body is empowered to grant a license to practise surgery and pharmacy in Scotland only. The University of Edinburgh, in conferring the degree in medicine, authorizes its owner to practise *ubique gentium*, but it is evident, from the exposition of Mr. Willcock, that such graduates cannot practise legally in England; and, as there are positive statutes, conferring rights and privileges on the Dublin College of Physicians, it is clear that the degree in question can have no force in Ireland. This was exemplified by a decision of the Court of King's Bench in Dublin, in 1818. An action was brought by the Apothecaries' Company, of Dublin, pursuant to their act, 31 Geo. 3, against Mr. Butler, who had been duly qualified as an apothecary in London, agreeably to the 55 Geo. 3. But it was decided by the court, that he had no right to practise in Ireland, until he had a license from the Apothecaries' Company of Dublin. It is also obvious that a licentiate of the Dublin Company could not practise in England, nor in Scotland. It is doubtful, however, whether the Dublin College of Physicians are vested with sufficient power to prevent graduates of the Scotch or other universities from practising in Ireland; but they refuse to meet such graduates in consultation, until they have become licentiates of the college, and this bye-law almost amounts to a prohibition. The best account I have found of the laws relative to the physicians in Ireland, is in Mr. Scully's Penal Laws, which is as follows :—

Ireland.—" A society of physicians in Dublin, was incorporated in 1691, by royal charter, under the name of 'The King's and Queen's College of Physicians.' This charter purported to arm the society with powers of an extraordinary and extensive nature, which (if confirmed by act of Parliament) would invest in them a monopoly of the practice of physic, as well as of medical honours. One of its provisions directed, 'that no physician, or other persons, should be permitted to practise physic in the city of Dublin or its liberties, without the license of this society.' The charter, however, has not acquired any legal validity in this particular; for its confirmation has never been obtained from the Legislature, although frequently solicited.

" The Legislature has, however, recognized the existence of this society, without adopting its charter.

" Thus, in 1761, an act was passed, authorizing the King's and Queen's College of Physicians in Ireland, to enlarge their number by admitting four learned and worthy doctors of physic into the fellowship of their body—to appoint inspectors of apothecaries' shops—to frame a pharmacopœia or code of drugs, &c.

" In 1767, it was enacted, that no person should be appointed physician to any county infirmary, unless examined and certified by this college of physicians.

" In 1785 and 1791, this college was empowered to elect the members of a school of physic, to be established in Dublin, to consist of three professors (and, upon a certain contingency, of four professors), called professors upon the foundation of Sir Patrick Dunn, and to appoint clinical lectures, to be given in Dublin.

" This college has also been incidentally noticed by the legislature upon other occasions of lesser importance, but without any addition to its powers."

The 5, 6, 7, 8, 13, 14, 15, and 16 Geo. 3, authorize the erection and establishment of the different county hospitals; and by the 26 Geo. 3, no person can be appointed surgeon to any of the said hospitals, unless certified by the Royal College of Surgeons in Dublin! By 45 Geo. 3, grand jurors are empowered to present for specified sums, for the support of such hospitals or infirmaries, and also for dispensaries; and this statute is further amended by 54 and 58 Geo. 3, which comprise fever hospitals, and order a surgeon, and not a physician, to be the medical attendant of these institutions. 11 Geo. 4, and 1 Will. 4. The salaries of medical attendants on prisons, and expense of medicines, are regulated by the 7 Geo. 4. c. 74. The dispensary act, 45 Geo. 3. c. 91, is as follows:—

"And whereas the distance of many parts of each county from the infirmary therein established, does not allow to the poor of those parts the advantages of immediate medical aid and advice which such infirmary was proposed to afford; be it therefore enacted, that in all cases where the said corporation shall certify to the grand jury of the county wherein such corporation is established, that they have actually received, from private subscription or donation, any sum or sums of money since the preceding assizes, for the purpose of establishing in any town or place therein a dispensary for furnishing medicine, and giving medical aid and relief to the poor, it shall be lawful for such grand jury to present to be raised on the county at large, and paid to the said corporation, a sum equal in amount to the sum or sums so received by such corporation, to be applied by the governors and governesses thereof, or such committee of them, not fewer in number than five, as they shall appoint for the purpose at any general quarterly meeting, together with the monies so received by private subscription or donation, in providing medicines and medical or surgical aid and advice for the poor of such town or place and its neighbourhood, in such manner as they or the said committee shall in their discretion deem most advisable; and that all monies so raised for such local dispensaries, as well as all monies so received from private subscription or donation for their use, shall be accounted for upon oath at each summer assizes, before the grand jury and the court.

"And be it further enacted, that every person who shall subscribe and pay towards the establishment or maintenance of any such local dispensary, or towards the county hospital or infirmary, any sum not less than one guinea, shall be a member of the body corporate of the infirmary or hospital of such county for one year, from the date of the payment thereof to the said body corporate, so far as relates to the management and direction of such local dispensaries; any thing in the said act to the contrary notwithstanding." This act is amended by 58 Geo. III.

For a full account of the laws relating to public charities in Ireland, I must refer to Mr. Phelan's work, published in October, 1835. The 58th Geo. III. authorized grand juries to present sums equal in amount to those sworn to have been annually received by the treasurers of such institutions. The 3rd and 4th Will. IV. enacts, that no subscriber or governor can vote at elections for medical officers to dispensaries, unless he had paid his subscription one year previous to the time of such election, or was a governor, &c. before the passing of this act.

There is also a clause which empowers grand juries to withhold presentments in cases of bribery at the elections of physicians or surgeons of infirmaries, or county hospitals, fever hospitals or dispensaries, and to examine, on oath, such medical officers so elected, or any other person or persons in the said county, touching the said election; and if it appear that any bribe has been given, directly or indirectly, to influence votes, the grand jury is authorized and required, not only to withhold the presentment, but such physician or surgeon cannot receive any money from the county for the management of, or his services at any such institution. His election is void, and he cannot be re-elected. This law ought to extend to England and Scotland. There is nothing so common, in elections for medical appointments at dispensaries in London, as for a candidate, however incompetent, to expend £500 or £1000 in making subscribers the evening before the day of election. The poor are thus deprived of the best medical attendance, for whoever has the longest purse or most personal interest, is certain of his election.

The grand juries require the medical attendants of dispensaries to have attended lectures on midwifery.

Surgeons.—The Royal College of Surgeons was incorporated by 24 Geo. III., in the year 1784, and this charter having expired, it was renewed by the 10th Geo. IV., during the year 1830. The members of this college refuse to meet those of the London and Edinburgh Colleges in consultation, and look upon them as an inferior order of surgeons, and exclude them from all situations of value, though, according to the authority of Mr. Willcock, a member of the London College has an undoubted right to practise, and, of course, enjoy his rights and privileges in every part of his Majesty's dominions.

Apothecaries.— By the 31st Geo. III., the company of apothecaries are empowered to prevent all persons who act as apothecaries without their license, the action to be brought in the Courts of Record in Dublin, and the penalty £20. The statute requires an apprenticeship of seven years to qualify for examination for the license. The act also requires, that every apothecary shall keep a record of the names of all persons to whom he sells arsenic, and not to supply it but to respectable persons.*

" Medical practitioners are allowed remuneration for attending coroner's inquests, but the sum shall not exceed five pounds, no matter how far they have to travel. 10 Geo. IV.

The legislature of this empire has entrusted vast power to the legitimate members of the medical profession, in deeming their evidence conclusive, in an immense number of civil and criminal proceedings; and confided to them the protection or destruction of the best privileges of our glorious constitution—the life, liberty, honour, and property, of every rank in society. Every man of sense in the profession ought to reflect seriously on the great responsibility he owes the public, the dignity of the faculty, and his own reputation, when he is called upon, as every one may be, to discharge the duty of medical jurist. In order to remind him of this most important duty, I shall insert a list of cases in which medical evidence is required, and shall follow the arrangement of Sir W. Blackstone, in his Commentaries upon the Laws of England.

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* This act is so imperfect as to be completely useless. Any one may demand and obtain an examination. The whole medical laws will be changed next year, and I need mention no more of them.

Cases in which medical evidence is required.—In the first place, such evidence may be called for by all courts of judicature, in respect to the absence of witnesses or jurors, who plead indisposition as an excuse; and no medical man can, consistently with his duty to the laws of the realm and to the dignity of his profession, certify otherwise than truly. In a word, the practitioner should feel himself bound, by every principle of honour, not to impede the administration of public justice, nor to grant a certificate for exemption from attendance unless on proper grounds. This principle should guide him in all cases, and especially in applications for absence from military or naval duty. The medical jurist is morally and legally bound, on all occasions, to testify "the truth, the whole truth, and nothing but the truth."

But in criminal proceedings the medical witness is often referred to, as in certain cases of reprieve. The most common example of reprieve, is when a woman is capitally convicted, and pleads pregnancy in stay of execution. Upon this point the law is very defective, for it supposes the fœtus inanimate unless it has quickened, though the infant is alive from the moment of its formation. The law is as follows:—

"In this case the judge directs a jury of matrons to inquire into the fact, and, if they bring in their verdict, quick with child (for unless the child be alive in the womb it is not sufficient), the execution is stayed, either till she is delivered, or proves, by the course of nature, not to have been with child at all. But if she proves with child a second time, she cannot have the benefit of this reprieve, for she may be executed *before the child quickens*, and the law will not be evaded by her incontinence. When a widow who has not had children, declares herself pregnant immediately after the death of her husband, his next heir may obtain a writ from the Court of Chancery, ordering two or more physicians, and as many matrons to decide, is she pregnant. This order is legally termed, *de ventre inspiciendo.*

"Another cause of reprieve is, if the offender become insane between the judgment and execution; for, though a man be sane when he commits a crime, yet, if he become insane after, he shall be acquitted; if after indictment, he shall not be convicted; if after conviction, he shall not receive judgment; if after judgment, he shall not be ordered for execution."

Medical evidence is required when a prisoner affects insanity, or when an empanneled juror pleads illness.

Liability as Witnesses.—The next subject that claims attention is medical evidence. There is no part of the duty of medical witnesses of such serious consequence to the public, and to their own reputation, or one which is generally more unpleasant to their own feelings. Like all other witnesses, "they must appear when subpœnaed, or forfeit one hundred pounds to the king, and ten pounds to the party aggrieved, with damages equivalent to the loss sustained by their want of evidence; but no witness is bound to attend, except his expenses are first tendered to him, unless he reside within the bills of mortality, and is summoned to give evidence within the same."

A surgeon need not open a dead body on the order of a coroner, unless he receives the usual fee; but he must attend to give evidence, and obey the coroner's summons.

By 7 Geo. IV. c. 40., "all persons appearing upon recognizance or subpœna, to give evidence in prosecutions for felony, either before the examining magistrate, the grand jury, or on the trial, are entitled to their expenses and a compensation for loss of time, and this, although no bill of indictment be preferred. The same provision extends to cases of misdemeanour, with the exception that no allowance is made for attending the examining magistrate."

It is right to state, that medical witnesses must divulge professional secrets when giving evidence in courts of law. Phil. on Evid. v. i. p. 135. Elem. of Med. Jurisprudence, by Paris and Fonblanque. This opinion is contradicted in a recent work, but the witness will be directed by the court.

The next division relates to persons and classes in every rank of society, as clergy and laity, civil and military, masters and servants, and a variety of minor divisions. With respect to the clergy, there is one point worthy of the attention of the medical profession, namely, that the Archbishop of Canterbury "exercises the right of conferring all the degrees which are taken in the universities." It need scarcely be stated, that the Primate of all England has very recently conferred the degree of medicinæ doctor, on one of the court physicians.

The classes of society are composed of the nobles and commons, and here the rule of precedence only need be alluded to. In the table of precedence, we find the order as follows:— Next to knights' younger sons, stand colonels; next doctors; then esquires; and next gentlemen. "The title of esquire is now commonly conferred on literary characters, the higher classes of merchants, bankers, attornies, solicitors, and medical practitioners."

Divorce.— The law of this country is as follows:—"A total divorce is given, whenever it is proved that corporeal imbecility existed before marriage. In this case the connection is declared to have been null and void *ab initio.* Imbecility may, however, arise after marriage, but it will not vacate it, because there was no fraud in the original contract, and one of the ends of marriage, the procreation of children, may have been answered." Blackstone's Commentaries, by Christian, v. 1. p. 140. The subject of doubtful sex or hermaphroditism, is fully considered by many writers hereafter referred to. Blackstone asserts, that monsters can inherit, and shall be considered male or female, according to that kind of sex which doth prevail, (B. 2. p. 247.) and they ought to be baptized. "Coke Littleton, 8. a. The same rule guides in cases of the tenant by curtesy." The ancients have admitted examples of procreation between hermaphrodites, which are entirely unworthy of credit; for every anatomist knows the difference between the male and female pelvis, which renders the process of parturition through that of the male physically impossible.

Parent and Child.—The law defines "a legitimate child, as one born in lawful wedlock, or within a competent time after a lawful marriage." Though pregnancy generally terminates at the end of the ninth calendar month, it may be protracted to a longer period; to the tenth, eleventh, eleventh month and a-half, and no limit is placed by the law on the subject.* See LEGITIMACY, and DURATION OF PREGNANCY.

Rights of Authors.—" In the case of Abernethy *v.* Hutchinson, an injunction was applied for to restrain the publication of the surgical lectures of the plaintiff; the application was refused, on the ground that the lecturer had no *written* copy of his lectures, prior to their delivery. The principle laid down was, that, though any one may have a property in an oral discourse, or even his own thoughts, yet, to establish a right to such property, there must be a *visible* and tangible record, by writing, of its existence, otherwise it cannot be identified, and the owner's claim established." The law of 1835, prevents the publication of oral lectures, without the consent of the owner.

Libel.—A fair criticism on the works of a professional artist, in the course of his employment, is not actionable, however mistaken it may be; if it is unfair and intemperate, and written for the purpose of injuring the party criticised, it is actionable. Soane *v.* Knight, Moo. & Malk. 74. MS. 1827.

Cotton Mills.—The 6 Geo. IV. c. 63, comprises important provisions for the preservation of health, and regulating the hours of work of children who are placed in such factories.

Insurance of Lives.—A medical man can insure his life for the amount of property he derives from his profession. It is right to mention what the law considers good health. " Where there is an express warranty that the person is in *good health*, it is sufficient that he is free from any existing ailment; for it can never mean that he is free from the seeds of disease. Even if the insured labour under a particular infirmity, if it can be proved, by medical practitioners, that it did not at all, in their judgment, contribute to his death, the warranty of health has been fully complied with, and the underwriter is liable.

" With respect to the risk which the underwriter is to run, it is usually inserted in the policy, and includes all suicide, or death by the hand of justice. When the risk is once begun, there can be no appointment or return of premium, though the underwriter is discharged."

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* See my Manual of Obstetricy, &c. 1832, art. Duration of Pregnancy.

Offences against the public peace.—If a medical practitioner attends, professionally, at a duel, he is liable to be indicted for murder, should the opposite party lose his life. Hence medical attendants remain some distance from the scene of action, but sufficiently adjacent to afford aid, if necessary.

Offences against the public health.—Any trade or business injurious to the public health, whether by the erection of an establishment, which might contaminate the air by noxious inhalations, is a misdemeanor at common law.

Exposing a child abroad, when labouring under small pox, either inoculated or natural, is an indictable offence.

The 43 Geo. III. c. 58. Lord Ellenborough's act, already referred to, in speaking of abortion, included cases of shooting, or attempting to shoot, stabbing, or cutting with a sharp instrument, as felonies; but this act is extended by 9 Geo. IV. c. 31. Lord Lansdowne's act, which comprises any attempt to poison, drown, strangle, stab, cut, or wound, even with a blunt instrument, as capital offences; and the concealment of the birth of a child, whether by a married or single woman, is made a misdemeanour.

Self-destruction.—The usual practice of juries, in cases of self-murder, is to bring in a verdict of *insanity;* judging, probably, that the act of self-destruction is such a strange anomaly in human conduct, such a wide aberration from the principle of self-preservation, which universally actuates sentient beings, as to form of itself unequivocal testimony of deranged or maddened intellect.

Rape.—Rape is the offence of having carnal knowledge of a woman by force, against her will, which, by the 18 Eliz. c. 7, is felony, without benefit of clergy.

The carnally knowing and abusing any woman-child, under the age of ten years, in which case the consent or non-consent is immaterial, as by reason of her tender age, she is incapable of judgment or discretion, is felony. Carnal knowledge of a child, between ten and twelve years old, with or without consent, is a misdemeanour—this term ought to be fourteen years.

A boy, under fourteen years of age, is deemed in law incapable of committing a rape, and, it seems, is not punishable. There may be exceptions to this conclusion.

In an indictment for rape, the party ravished is an admissible witness; but the value of her testimony must be left to the jury. For instance, if the witness be of good fame, if she directly discovered the offence, and made search of the offender; if the party accused fled for it; these are concurring circumstances, which give greater probability to the injury, after she had opportunity to complain of its perpetration; if the place where the fact is alleged to have been committed is where it was possible she might have been heard, and made no outcry: these carry a strong, but not conclusive, presumption that her testimony is false or feigned. Moreover, an assault to ravish, however shameless and outrageous it may be, unless it amount to some degree of consummation of the deed, is not a rape.

It is the essential character of this crime, that it must be against the will of the female on whom it is committed. And if a woman is beguiled into her consent, by any artful means, it will not be a rape; and, therefore, having carnal knowledge of a married woman, under circumstances which induced her to suppose it was her husband, was held, by a majority of the judges, not to be a rape. Russ. Ry. C. C. 487. However, the crime is not mitigated, by showing that the woman yielded, at length, to violence, if her consent were obtained by duress, or threats of murder; nor will any subsequent acquiescence, on her part, do away with the guilt of the ravisher. It is a rape to force a prostitute against her will; so it is for a man to have forcible knowledge of his own concubine, because the law presumes the possibility of a return to virtue. A man, however, cannot be himself guilty of a rape upon his own wife, for the matrimonial consent cannot be retracted. 1 Hale, 629; but he may be criminal in aiding and abetting another in such a crime, and if found guilty will be executed.

All who are present, of both sexes, aiding in the perpetration of rape, are principals in the second degree.

Unnatural Offence.—" Buggery, from the Italian *buggerare*, is a carnal copulation against nature; as a man or woman with a beast, or a man with a man, or a man unnaturally with a woman. It was anciently punished with burning, some say, burning alive; but it is now a capital felony, and punished, as other capital felonies, with hanging.

The law requires the same evidence of penetration and completion in this case as in the preceding crime; both parties are equally guilty, as well as all present and assisting therein. If committed on a boy under fourteen, it is felony in the agent only. 1 Hale, 47.

Blackstone properly observes, on this truly unnatural offence, that it is a "crime which ought to be strictly and impartially proved, and then as strictly and impartially punished. But it is an offence of so dark a nature, so easily charged, and the negative so difficult to be proved, that the accusation should be clearly made out; for, if false, it deserves a punishment inferior only to the crime itself." This law is modified by the 9 Geo. IV. c. 31. already cited, and subjects a person, making an unjust charge against an innocent party, with an intent to extort money, to death.

Anatomy.—The exhumation of dead bodies, even for the purpose of anatomical science, is a misdemeanour, it being contrary to common decency, and repugnant to the general feelings of mankind. 2 Leach, 560. Also Anatomical Bill.

Curtesy, by the law of England, is where the wife had an estate in fee, and has issue born alive, but the mother dies, and the husband holds the lands during life. I have elsewhere cited cases of this kind, in which medical evidence alone decided the question.—*Manual of Obstetricy.*

Such is an exposition of our laws according to Blackstone and other standard authorities; and I shall consider all medico-legal questions in the order in which they are arranged.

PART III.

MEDICAL JURISPRUDENCE.

CHAPTER I.

DISQUALIFICATIONS FOR MARRIAGE—CAUSES OF IMPOTENCE —DIVORCE—HERMAPHRODITES—AMBIGUITY OF SEX.

Disqualifications for Marriage.

Some diseases are aggravated by marriage, as inveterate scrofula, epilepsy, confirmed phthisis, caries of the vertebræ, distortion of the spine, aneurism of the heart and large vessels, &c. &c. Rachitis is often transmitted to infants; and this predisposition in the female exposes her to spinal and pelvic deformity; and it too often happens, in such cases, that the very moment she hopes to become a mother, she is consigned to the tomb. Foderè says marriage should be interdicted when the sacro-pubic diameter of the brim of the pelvis is less than four inches; Orfila, when it is less than three inches; but contractions of the outlet or perineal aperture are as strong objections. When the deformity is such, that an infant cannot be born through the natural passage, but must be dismembered, or extracted by the Cæsarian operation, marriage ought to be interdicted. Theologians, as well as physicians, hold this opinion. Mania, and other forms of mental imbecility, are impediments to the marriage contract; because it is necessary for this compact, that there should be capacity to contract, and the consent of both parties. All physiologists agree, that early or premature procreation is objectionable on many accounts, from the imperfect developement of the parties, the smallness of the pelvis, which exposes the woman to protracted suffering during parturition, and too often to loss of life.

It is well known to practical obstetricians, that women who become mothers at an early age, purchase the honour of maternity at a very dear rate. Such persons are liable to numerous disorders during pregnancy; the pelvis is unable to support the gravid uterus—it is too small for the passage of the infant; consequently, parturition will be laborious and protracted, and finally must be completed by artificial means; while the degree of pressure produced by this process on the important organs, or soft parts covering the bones, causes great suffering and danger to the woman, inflammation, gangrene, or sloughing, and may be followed by deplorable diseases, or death itself.

It is also generally admitted, by the most eminent writers, that the present mode of female education is highly injurious to health, predisposes to spinal curvature, and, consequently, to pelvic deformity of the hip and other bones, thereby often rendering parturition highly dangerous and fatal. Writers on spinal diseases have very fully illustrated this position. I have, in my *Lectures on Diseases of Children.*

Again, great injury is inflicted on the natural developement of females, by the custom of tight lacing, the functions of the thoracic and abdominal viscera are impeded, the developement of the breasts and nipples is prevented; these parts are considerably absorbed from pressure—the lactiferous ducts are almost obliterated—the nipple will be undeveloped at the end of pregnancy—lactation will be impeded or absent after delivery—the natural food of the offspring greatly diminished—while the mother will be affected with inflamed breast, or sore nipples, which may lay the foundation of cancer. The female is unfit to co-operate in the function of procreation until after the twelfth or fourteenth year, or until menstruation is established; for, at an earlier age, the sexual organs are undeveloped; there is no venereal desire; and sexual intercourse is painful. Hence the cruelty and barbarity of violating female children of a tender age.

The male is also incapable of performing his part in the mysterious process of reproduction until after puberty, and, according to the law of this country, before the fourteenth year. There are, however, exceptions, as will appear hereafter.

There is no subject which distresses most married persons so much, as want of offspring, or leads to so much domestic unhappiness, or to infidelity, or the nullification of marriage. It is necessary for the medical practitioner to be fully informed on all the causes which prevent both sexes from accomplishing the act of procreation. Impotence may be urged to obtain a divorce, and to repel a charge of bastardy or rape, and also in disputed cases of paternity, legitimacy, or right to succession. It is now seldom urged to obtain a divorce in this, or any other civilized country. The multiplication of the species being the real end of marriage, the laws of many countries allowed a divorce in case of incurable impotence in either party, at the time of marriage. The existence of this state must be proved by medical witnesses, and matrons appointed to investigate it in women. Marriage was not dissolved when sexual imbecility happened after the ceremonial. Such is the law of England; because the contract was fair and just between the parties. Divorce is never granted at present, in this country, but on the grounds of adultery or mal-treatment.

"It is inconsistent," observes Dr. Thomson, "with woman's natural modesty, — that charm which is the chief instrument of her dominion over man, and far more permanent than the irresistible fascination of her personal attractions, is that quality which justly lifts her above the level of common nature, and when thrown off, degrades her below even the most depraved of our sex;—it is inconsistent with this quality, for a wife to make a charge of impotence against her husband. And, therefore, every such charge must be regarded with suspicion."*

All disqualifications for matrimonial union may be divided into two classes. First, those caused by defect of mental power; and secondly, those caused by defect of sexual organization. The disqualifications are, therefore, moral and physical, and are usually expressed by the terms impotence and sterility. These terms are often used synonymously, though widely different. *Impotence* consists in the incapacity for copulation, or in the impossibility of exercising the venereal act; *sterility* consists in the aptitude of the organs for procreation, without the power of reproduction. Thus a person may be impotent but not sterile, and *vice versa*. Some writers apply the term impotence to the male; but such a distinction is arbitrary and unscientific. The female may be impotent from malformation, and the male sterile from excessive venery, self-pollution, and diseases of the testicles. A man who is impotent is necessarily sterile; but a woman may be impotent and not sterile. I may observe, here, that sterility does not afford a just plea for the nullity of marriage. The manifest causes of impotence, in both sexes, are divided into physical and moral.

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* Lectures on Medical Jurisprudence, in my Journal, 1834—5.

Physical, manifest, natural, or accidental impotence of the male.—The causes of manifest impotence of the male are absence of the penis or testicles. There must be total loss of the penis, as the slightest penetration into the vagina is sufficient for procreation. (Blundell, Richerand, Sedillot, Manuel de Med. Legale, 1830,* and others. There may be congenital want of the penis (Skenck and Catier), or it may be lost by accident, as by the bites of animals, burns, or surgical operations. Mr. Hurd's case proves, that though the penis may be removed close to the pubes, the ejaculatory muscles retain their power, and may propel the semen with sufficient, indeed the natural force, and effect impregnation. A case was narrated a short time since, in the public police reports, of a young woman who was jealous, and concealed a razor, and removed her husband's penis, while in the sexual act, close to the pubes. He recovered, notwithstanding the hemorrhage, and cohabited with another woman, whom he illegally married. His first wife ascertained that his second was pregnant, expressed great sorrow for her act, and induced him to return to her. He did so, and then the second wife appeared before a magistrate to swear or affiliate the infant of which she was pregnant, to him. In this case the ejaculatory power remained perfect, though a large portion of the penis was removed. I have known other cases in point. The absence of the testicles from the scrotum, is no proof of their non-existence in the abdomen; unless the penis be small, the voice puerile, the beard absent, the form delicate, and the whole physical and moral constitution feminine. It is well known, that the testicles may not descend into the scrotum, though they be fully developed in the abdomen, and perform their functions perfectly; indeed, according to some writers, much better than in the natural situation.

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* Hurd, in the London Medical and Surgical Journal, 1830, vol. IV.

Rolfinck relates the case of a libertine who was executed, and in whose abdomen the testicles were found fully developed. He advised a young man in a similar situation to marry, and a numerous offspring proved the correctness of the advice. (Mahon). It is stated by Bichat, on the authority of Roux, that the testes do not descend in some of the natives of Hungary, until some months, or even years after birth (Brewster's Encyclop.) Pope Sextus V. decreed, in 1587, in a letter to his Nuncio in Spain, that those destitute of them in the usual situation should be unmarried; and Philip II. confirmed the order, which affected many in that kingdom. The Parliament of Paris made a similar law in 1665. (Mahon). I was once consulted by a robust and healthful young gentleman, who had but one testicle in the usual situation, as to the propriety of his marrying a young lady, whose fortune was £70,000. There was no cicatrix, the other testicle had never descended; he was well developed. I advised him to marry. He did so, and has had children. Simon states, that he knew a soldier who had no testicles in the scrotum, though he had children, and very much disappointed his paramours. (Rolfinck).

The destruction of one testicle by castration or disease is no impediment to procreation. (Sir A. Cooper, Marc. Dict. des Sc. Méd. Mahon.) When both testicles are completely diseased, their secretion is injured or destroyed, and sterility is the consequence. Frequent seminal emission, or the sudden secretion of semen during coition, is an effectual bar to reproduction. The secreting power may be very much increased or diminished. The more fluid parts of the spermatic secretion must be absorbed, and the semen must be retained some days, to effect procreation. Both parties must also be continent, and in good health.

Both testicles may be removed by castration, yet procreation may be effected, as the vesiculæ seminales may contain a sufficient quantity of semen for one or two prolific emissions, after which the person will be sterile, but not impotent. Baron Boyer was consulted by a man whose testicles were removed in consequence of sarcocele. He knew his wife, and she became pregnant. He feared he was not the father: but M. Boyer assured him he might be, and if so, this would be his last infant. (Sedillot, Manuel de Med. Leg.) But swine, horses, and bullocks generate with one testicle; and also eunuchs, have erections and emissions, which consist of the prostatic fluid, the mucus of the seminal vesicles and urethra.

The ureters may open above the pubes in monsters (Duncan and others); and, in such cases, there are other malformations, and the individual is sterile. Mahon, and many other medical jurists, contended that individuals were impotent who were affected with hypospadias; that is, when the urethra opens through any part of its course from its orifice to the scrotum. It is now proved, that if the opening be so placed that it may enter the vagina, impregnation will follow. Frank relates a case in point. He knew a father so affected transmit it to his son, and even to three generations. Another individual had three sons. (Bull. de la Facultè de Medecine, 1810.) Morgagni, Petit-Radel, Sabatier, Gauthier, and Richerand, have observed analagous facts (Dict, de Sc. Méd. art. *Hypospadias).*

Foderè saw a young soldier, in whom there was a fleshy excrescence in place of the penis, in which the ureters terminated; the testicles were healthy. The penis is sometimes impervious at the extremity, and the urethra may open superiorly, inferiorly, or laterally. Belloc knew a man in whom the ureters terminated at the bottom of the frœnum, and who had four children resembling him; two of whom had the same malformation. Zacchias and Francis, of New York, describe similar cases; and the individuals had children.

Dr. Simeons, of Offenbach, describes eight cases of hypospadias; two of the individuals were known to him. One had six children, and the other four. The third and fourth were brothers, and the fifth and sixth the sons of the first. In all, the orifice of the urethra was situated in the glans. It is now held, that, in cases in which the urethra opens in any part of the penis which can enter the vagina, the individual is capable of copulation and of generation. The celebrated John Hunter advised a man whose urethra opened in the perineum to collect the seminal emission, and eject it into the vagina with a syringe. Impregnation was said to have followed; an individual was born, whose granddaughter is now living in London. I very much doubt this case, and do not believe it; because the emission should be very profuse before it could be drawn into a syringe, and even then, when cooled by the the instrument could scarcely be prolific.

The urethra sometimes opens along the dorsum penis; this constitutes epispadias. It is evident that the conclusion in the preceding case applies to this. The urethra may end in a cul de sac (Goupil, Cloquet, &c.); or open on the side of the penis (pleurospadias).

Dimensions of the penis, extraordinary thickness and length, are considered by some writers as causes of impotence. Foderè is of opinion, that the respective sexual organs may be so disproportionate as never to be adapted to each other; and the physical inconveniences are such as to expose the female to great injury and danger to her health. A case lately occurred in this city, the particulars of which were, that though the female was of ordinary stature and well formed, the marriage could not be consummated. The case was mentioned to me by a medical friend, but he could not state whether any malformation or disease existed. The husband received her fortune, and refused to return any part of it, though the woman returned to her family. There is a model of the genital aperture in the collection of Mr. Miller, of Theobald's Road. There was a fleshy growth projecting at the vulva, which completely closed it.

"It must be admitted, however," M. Foderè observes, "that thickness of the penis, which excites great pain in some women, procures voluptuous sensations in others, and that the vagina is capable of great dilatation, which may be effected by gentle and gradual efforts, and reduced to a state capable of receiving the virile member. Though extreme length of the penis, he continues, may produce contusion of the os and cervix uteri, it cannot be deemed a just cause of impotence, because, by certain precautions, this danger may be avoided, unless there is great difference between the age of the parties."

A woman, aged thirty-eight, was a patient of mine, at the Western Dispensary, Westminster, in the summer of 1835; and who was seen by different students. I copy the following notes from my case-book. She is married fourteen years, but never menstruated. She suffered great pain after marriage, which could not be consummated. Dr. Elliotson examined her at St. Thomas's Hospital, and referred her to the late Mr. Cline, who operated upon her, and told her the vagina was contracted. Four years afterwards, Mr. White, of Parliament street, operated on her, and stated that the mouth of the womb was closed, and turned "the wrong way." Her husband has repeatedly told her, that she differs from other women. On examination, I discovered the vagina about an inch in length, and no trace whatever of os uteri. She states, that she suffers great pain during coition, unless her husband is cautious. She suffers severe pain in the pelvis every month, which is relieved by opium. Joan of Arc was in a similar condition. I have known three cases of vesico-vaginal fistula, in which the vagina was so contracted, by inflammation and its consequences, that sexual congress was impossible. Mr. Thurnam, apothecary to the Westminster Hospital, saw one of these cases with me in Charles Street, Westminster, during the last summer.

Diminutiveness or shortness of the penis is no proof of impotence, as the slightest penetration and emission are sufficient for impregnation. I have known several cases of this description. Obliquity, tortuosity, or bifurcation of the penis, bad stricture of the urethra, phymosis, paraphymosis, warts, chordee, chancres, or excessive length of the frœnum, cannot be considered absolute causes of impotence, as they can be remedied by surgical operations.

Skenck, Weikard, Badinger, Marc, and Richerand, describe examples of individuals with a double penis. M. Peyronie has described several examples of a varicose and other indurations of the corpora cavernosa, which constitute the body of the penis. He states that if a hard tumour is in the middle right corpus cavernosum, the penis when erected forms an arch, the curvature of which is to the right side; and the curve is reversed when the left is arched. When the induration is in the portion of the penis in the perineum, the organ is curved downwards; and when near the pubes, it is curved upwards. (Mem. de l'Acad. Royale de Chirurgerie. T. 1.)

Bad stricture, which nearly closes the urethra, enlargement of the verumontanum, or prostate gland, may prevent the emission of the semen, and cause temporary or permanent sterility. I have been consulted in eight cases of the first, and ten of the second disease. In two of prostatic disease, the sperm was emitted drop by drop; and in three, both it and the urine were scattered during emission. All had offspring.

Large scrotal herniæ cause recession of the penis, and may render coition impracticable; but in some cases relief may be afforded. The Western College of Prussia declared this a a ground for divorce. The same observations apply to large hydrocele. Sarcocele or scirrhus of the testicle does not cause absolute impotence, as it may be removed by operation; and one testicle remaining is sufficient for procreation. The testicles may disappear by disease (R. Hamilton, Larrey, Foderè), or by the abuse of iodine. But Dr. Hood, of Brighton, has published a case in my Journal, in which he reduced the size of an enlarged testis with iodine, both internally and externally, while the other, which was flabby and atrophied, enlarged, and regained its functions.—(Vol. i. 1832, p. 403.) Dr. Robert Hamilton knew a man with one testicle, the other having wasted, who had five children. M. Lugol has not mentioned that absorption of testes occurred among his numerous patients, and this may be accounted for by his using chemical combinations of iodine.

Three conditions are necessary on the part of the male for copulation—*erectio, et intromissio penis, cum seminis emissione.* Impotence in men depends on defect of some one or more of these conditions; erection, intromission, and ejaculation of the spermatic fluid. The causes of impotence are more commonly observed in man than in the other sex; and this is easily accounted for, by the greater part the male has to perform in nuptial congress. This is evident from the phenomena which give the virile member the form and disposition proper for erection, the introduction of the organ, and the ejaculation of the semen, effected by a violent and complicated action, which requires a concurrence of many indispensable conditions, as the organs not only contract spasmodically to effect the expulsion of the male fluid, but all the body participates in this convulsion at the moment of emission, as if nature at this instant forgot every other function. The causes of impotence in man arise from two sources, from malformation of the genitals, or from want of action in them; but in females, impotence can only depend on malformation, natural or acquired.

The causes of want of erection may be divided into physical and moral. The physical causes depend on defects of the body, as paralysis of the penis, curvature of the spine,* frigid and apathetic temperament. The moral causes are such as act powerfully on the imagination, and suddenly produce an atony of the genitals, or induce an inactivity in organs properly developed. "The genital organs," says M. Virey, "offer two states during life, in the young and old, which are the frozen zones of existence; the intermediate state is the torrid zone of life. The infant has nothing to give, the old has lost all." Immaturity of age, and senescence are often causes of want of erection. This doctrine, though generally correct, admits of exceptions, as children have been precociously developed even before the fourth year, examples of which have been cited; and this author described a boy, aged seven years, a native of the department of Lot, who was as fully developed as an adult, and who made the most comically furious attacks on his female acquaintance, and absolutely deprived one of them of that which she could never regain. It is stated, that a boy of ten years of age became a father during the excitement of the French revolution. Among the causes of want of erection we must reckon a frigid or apathetic constitution, a total insensibility to sexual desire, and this is said to be of a profound lymphatic temperament. Descourlitz describes persons of this temperament in these words:—"The hair is white, fair, and thin, no beard, countenance pale, flesh soft and without hair, voice clear, sharp, and piercing; the eyes sorrowful and dull, the form round, the shoulders straight, perspiration acid, testicles small, withered, pendulous, and soft, the spermatic cords small, the scrotum flaccid, the glands of the testicles insensible, no capillary growth on the pubes, a moral apathy, pusillanimity and fear on the least occasion, are symptoms of anaphrodisia, or impotence, or sterility; and any one having the majority of these signs is incapable of copulation or generation.' (Propositions sur l'Anaphrodisie.)

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* Dr. Harrison has lately published some cases of this kind, which were cured by the removal of the spinal disease. (Essay on the Powerful Influence of the Spinal Nerves on the Sexual Organs, 1831.)

A habitude of chastity is another opponent to erection, such as characterised the ancient fathers of the desert, and in those who, by fasting and other forms of church discipline, extinguish those feelings implanted by nature, but, in their opinion, contrary to that purity which should distinguish those who have made vows of chastity. The sexual organs of such persons decay, like all other organs whose functions are not exerted. Long continued debauchery, whether with women or by masturbation, will cause impotence. "The impotence," says Pinel, "caused by the latter excess, reduces youth to the nullity of old age, and is too often incurable." Impotence is often caused by debility of the genital organs, induced by precocious venereal enjoyments; the abuse of these, or of that still more dangerous one—solitary pleasure or masturbation. In these cases there is want of erection, and should a seminal emission take place, it does not possess its prolific power. This form of impotence is often irremediable, though I have cured some married persons of it, who had several emissions of the spermatic fluid daily. One of the patients was treated, by Professor Colles, of Dublin, and myself. I could give the histories of several cases of this description.

Tissot, in his Treatise on Literary Men, contains some curious examples of the bad effects of severe study on the generative functions. Peyrilhe reports the following case:—A mathematician, profoundly occupied with some problems which he could not resolve, was so affected when he caressed his spouse he could not ejaculate. His wife consulted the narrator, who advised her to produce in her husband a joyous excitement, and to seize this moment to receive his caresses. She rigorously followed the advice, and her husband regained his powers. (Maur, Thesis, Paris, 1835. Marc. Dict. des Sciences Med. Impuissance.) Excessive desire or love may cause impotence. A man, aged thirty-six years, of a good constitution, was married to a healthful woman, aged twenty-six. Both were in good health, and extremely desirous of having children; but the husband could not ejaculate on account of the power of erection and rigidity of the penis, and he was forced to retire before the consummation of the act. This circumstance was the more remarkable, as he had experienced no difficulty with other women, and had children by his first wife. (Gazette Med. 1785.)

There is a similar case recorded in the Edinburgh Medical Essays. Dr. Cockburn ascribed the want of emission to the excessive vigour of the erection, which closed the urethra. Slight evacuations and refrigerants effected a cure. Every exciting or depressing passion which operates during the act of reproduction, may be a temporary cause of impotence. All causes of debility, whether moral or physical, impede the function of generation. Priapism and satyriasis impede seminal emission, and may be causes of impotence and sterility.

Dr. Gall observed in his lectures, that such clergymen of the Catholic church, as were considered in the odour of sanctity, were remarkable for atrophy of the genital organs.

Monstrous enlargements of the penis and scrotum, constant priapism, induced by local or constitutional irritation in some persons; and frequently the result of a long course of dissipation and libertinism, cause impotence. The late Mr. Norris, of the Old Jewry, who was one of the examiners at the Royal College of Surgeons, in this metropolis, related a case in the London Medical and Physical Journal, of a man affected with priapism, who performed the generative act fifteen times in one night; but it is not mentioned whether impregnation followed or not.

Many debilitating diseases, such as typhus fever, purpura hemorrhagica, anasarca, infiltrationof the penis and scrotum, falls and blows on the head or spine, are causes of impotence.

It is known to every well-developed adult, that the influence of the mind is very great on the generative function, and may wholly prevent the completion of the act. If the imagination wanders from the real object of desiring species, impregnation is often, but not always impeded, and issue seldom follows. Sterne has happily commented on this point, in the first chapter of one of his most popular works; and his views are strictly physiological. When the one party entertains dislike or disgust to the other, or when either allows the mind to be occupied with the image of another individual, the act of generation may be duly performed, and the offspring will bear a strong resemblance to the person who occupied the imagination of the party. Dr. Thomson gives an example of this kind, in his lectures on Medical Jurisprudence, published in my Journal, 1834.

There are many cases in which impotence is caused by the hatred and disgust of the husband towards his wife, though he is capable of performing coition with other women. The histories of profligate men have demonstrated, that a man may be impotent with one woman, but a new and more attractive object arouses the corporeal energies, and assists the completion of the sexual function. This position is illustrated by the case of the Earl of Essex and Lady Frances Howard, which occurred in 1613, in which the marriage was declared void by the king, though the archbishop of Canterbury was against granting a divorce. The earl admitted he was impotent with his wife, but not so with other women. The following is the history of the case:—

The countess transferred her affections to the royal favourite Carr, Viscount Rochester, (afterwards Earl of Somerset,) and being desirous of a divorce, complained that her husband was impotent. She deposed, that for the space of three years they had lain together, and during that time he had repeatedly attempted to have connection with her, without success. She also stated that she was still a virgin, and several peeresses and matrons, who were directed to examine her, corroborated this statement, although it is mentioned that she substituted a young female of her own age and stature in her place during the examination. She was also pronounced to be well fitted for having children. The earl, in his answer, admitted his inability to know her, while he denied his impotence as to other females, and insinuated his belief of her incompetency for copulation. After the examination of numerous witnesses, objections were raised by Abbot, the Archbishop of Canterbury, and one of the king's delegates on this trial, on the propriety of dissolving the marriage on such grounds; to which the king vouchsafed an angry reply. It was finally decided by the vote of seven delegates (five being absent, and not consenting,) that the marriage should be dissolved, and the parties allowed to contract new marriage ties.*

A case somewhat similar occurred in France, in 1653. The Marquis of Langey, aged 25 years, married a lady between thirteen and fourteen years of age. They lived happily, as man and wife, for four years: and a short absence from home, induced the marchioness to express great anxiety and tenderness of affection for the return of the marquis. Soon after this, the wife accused the husband of impotence, and declared herself a virgin. The marquis, piqued at this, demanded the custom sanctioned by the laws of his country—trial by congress. The judge ordered it; the lady appealed; but the decree was confirmed. A jury of five physicians, five surgeons, and five matrons, was empanneled. They filled their report with the most obscene details, and gave their decision against the marquis. The marriage was declared to be void, on the 8th of February, 1659; the husband decreed to pay all costs; to return the fortune he received; and he was ordered not to marry, while the marchioness, now Madlle. de St. Simon, was left at liberty to do so.

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* Hargrave's State Trials, vol. i. p. 315. See also No. 1, in the Appendix to vol. viii., being a narrative of the proceedings on the trial, drawn up by the Archbishop of Canterbury. In the speech which he intended to have delivered on giving his opinion, he relates the case of one Bury, tried in 1561. His wife cited him before the ecclesiastical court on the ground of impotence, and the physicians deposed that he had but one testicle, and that not larger than a bean. The want of access was also proved. A sentence of divorce accordingly passed. After some time, Bury married again, and had a son by his second wife. A question arose, after the lapse of some years, whether the offspring was legitimate, and it was decided that the *second marriage was utterly void*, because the ecclesiastical court had been deceived in the opinion they had given on the impotency of Bury. (Page 23 of the Appendix.)

The marquis submitted a legal protest against the decision that he was impotent, and declared his intention to marry. The lady married the Marquis of Boisle, by whom she had three daughters. The marquis also married, and had seven children.

The Marchioness of Boisle explained, on her death bed, the stratagem which she employed to annul the marriage. The minister of public justice seized upon this declaration, and brought in a law which abolished, for ever, the indecent and useless proof of virility, by trial of congress. It may be stated, that it had been abolished by Justinian, about the fifth century, as an outrage on the purity of the Christian religion.

Long watching, great fatigue, mental or corporeal, want of nutriment, excessive evacuations, sanguineous or otherwise, of blood, bile, fæces, saliva, menses, scorbutus, cachexia, marasmus, peripneumony, hydrothorax, anasarca, malignant fevers, diseases of the brain and spinal marrow, whether from external injuries or poisons, and numerous other diseases, are temporary causes of impotence. Sexual desire is suppressed by acute diseases, and returns after convalescence. Zacchias and Beck relate numerous cases in proof of this position. We see this further illustrated at the convalescence after fevers, when erection is frequently observed. Some diseases stimulate the generative organs, as calculus in the kidneys or bladder, stricture, disease of the prostate gland, gout, rheumatism, consumption, piles, mania, itch, leprosy, and other cutaneous affections. Others may diminish or suppress venereal desire for twenty-four hours, and then the functions may be restored. (Zacchias.)

Excessive venery is a frequent cause of want of erection and impotence. I have been consulted in several cases of this description. This is a frequent cause of want of offspring in young married persons, and those who indulge in a solitary vice. In these cases the semen may escape without the aid of the ejaculatory muscles, is imperfect in quality, and devoid of prolific power until the health is improved.

The abuses of narcotics, saline refrigerants, acids, acid fruits, iodine, camphor, and nitre, are causes of impotence, as they reduce the muscular power below the ordinary state. Of all causes cold is the most powerful. Thus, in the Polar regions, there is neither love nor jealousy.

"The diseases," says Beck, "which we may rationally suppose will prevent cohabitation, are the following:—A mutilation, or severe wounds of the sexual organs, carcinoma of the testicles or penis, gangrene of the lower extremities, immoderate evacuations of blood or bile, or of the fæces, scorbutic cachexia, marasmus, peripneumony and hydrothorax, anasarca in its perfect state, particularly if accompanied with an infiltration into the sexual organs; nervous and malignant fevers, particularly if they affect the brain, and are accompanied with great debility and loss of memory; all affections of the head and spinal marrow, whether from a fall, blow, wound, or poison;* or from external causes, as apoplexy, palsy, or other comatose diseases. If the infant is conceived whilst the husband has been known to have laboured under either of these maladies, the presumption is certainly against its legitimacy. So also, if he be affected with leprosy, venereal ozœna, severe cutaneous diseases, or insanity, we may reasonably doubt the fact of cohabitation, from the fear that we may suppose the female has experienced, lest she should be contaminated, or from the dread that she has entertained of having communication with the individual."

Moral Causes.—There are no facts which so evidently prove the influence of the moral over the physical state of man as the phenomena of erection. A lascivious idea will arise in the midst of our gravest meditations; the virile organ will answer its appeal, and will become erected, and fit for the functions which nature has confided to it; but another thought arising, will instantaneously extinguish, with the most frigid indifference, all amorous transport.

This statement is well exemplified by the effects of the passions. Chagrin, inquietude, and debilitating passions, prostrate the whole economy; jealousy, and profound meditation, impede the faculty of procreation. Thus, at the very moment when enjoyment is about to be commenced, too eager desire, the excess of love, the fear of not being loved, timidity, respect, doubt of capability, the fear of being surprised, the shame of excessive modesty on being in the presence of witnesses, antipathy, the ecstasy on beholding the attractions of a beloved or fine woman, the continence imposed by real and true love, the sudden knowledge of some physical defect in the female, aversion from filth, odour, and pre-occupations of the mind, are sufficient to oppose erection, and to abate it most suddenly. But who can enumerate all the moral causes capable of impeding or destroying erection? A sigh, doubtfully interpreted; a recollection, an equivocal word, are sufficient to destroy the illusion, and congeal the most violent passion. A newly married man has become suddenly impotent, on discovering his bride to be without a hymen, though the absence of this membrane is no proof of unchastity; and a debauchee has as suddenly become impotent, on finding the membrane perfect.—(Dict. de Sc. Medicales.) It is thus with a literary man, a philosopher, or those who have a ruling idea, which excites the brain more than the sexual organs. But such individuals are often excessively amorous. Excessive nervousness, frigidity, a defect in the moral or physical condition renders the act of procreation infecund, and often impossible. The fear of being impotent is the most frequent and powerful cause of this condition. Thus the cases related by the illustrious Hunter, and the absurd impressions of former times, as to the influence of his Satanic majesty, and his colleagues the witches. Men supposed there was no physical power when the moral state had destroyed their desires, and they were impotent as long as they supposed themselves so. Such is the power of the moral over the physical state of man. Many impotent persons of this class were cured by Hunter; and many are annually cured by quieting the imagination and strengthening the constitution, as I have also observed in numerous instances. In remote ages men allowed the illusions of the imagination to have a most extraordinary power over their minds and bodies. This was most remarkable in the subject before us. Nero and Amesis were rendered impotent by incantations, made at the suggestions of their concubines.

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* Foderè mentions the case of a person, aged forty, who laboured under temporary impotence during the space of six months, from exposure to charcoal vapours. This state of the system was left after the recovery from the immediate danger. Vol. I., p. 382.

Thus, we cannot easily comprehend how the power of rue, or St. John's wort, could prevent a man, properly developed, from performing his nuptial duties on his bridal night; or how the pronunciation of a few obscure and unintelligible words, could have a similar effect. These words were to be written on paper with the blood of a bat, sewed up with a needle which was used in making the shrouds of the dead, and then the charm was to be tied round the neck of the new married man (Venette; also Les Secrets du Petit Albert), or merely pronounced. To cure this enchantment, the church prescribed prayers, the doctors physic, and the law severe punishment. Bacon describes it in his Natural History, as prevalent in Germany and France; in the latter country it was designated *nouer l'eguilette*, or tying the point. Mr. Hunter ordered timid bridegrooms, and those whose impotence was imaginary, to refrain from sexual intercourse for a week, no matter what might be their desires, and then to try their powers. They usually took some mild form of medicine, and a few drops of tincture of opium each night, during the period of preparation. On a future attempt, the mind ought not to be pre-occupied, but wholly intent on the act. This plan of treatment was most judicious, and I have tried it in several cases with success. I have also given quinine to improve the appetite and strength. The accumulation of the seminal fluid for a week excites strong desire, while the opium, acting on the brain, changes the train of ideas, and prevents nocturnal emission, so that at the end of the prescribed period there is no doubt of success. This cure was effectual, and many of his patients succeeded sufficiently to remove all unfavourable impressions of impotence ever afterwards.

Impotence, natural, manifest, or accidental.—It has been long held, I think erroneously, that the generative organs of the human female are more complicated than those of the male, and therefore that the causes of impotence are more numerous and less apparent than in the other sex. If we examine the genital organs of both sexes anatomically, we shall find them equally complicated, and possessing an equal adaptation or arrangement of parts, as well as an identity of structure. Thus we find the structure of the penis very similar to that of the genital fissure and vagina, the fold of the prepuce, the cavernous structure in the performance of a part of the genito-urinary functions, the openings of the vesiculæ seminales and uterine tubes, the vesiculæ seminales and uterus, the testes and ovaries, the spermatic cords and the uterine tubes.* We also find the diseases of one sex as numerous as those of the other; and those who doubt the assertion, need only refer to the works of Chopart, Titley, and others, on diseases of the genito-urinary organs of the male, for ample proof of my position. I need scarcely observe, that diseases of the vasa deferentia, vesiculæ seminales, the pressure of tumours, hydatids, &c. on these parts, diseases of the prostate gland, urinary calculi, diseases of the urethra, fistulæ in perineo, diseases of the bladder, penis, and scrotum, will be found as numerous as those of the generative system of the other sex. Besides, it would be inconsistent with the wisdom and conformity displayed in all the works of Providence, that one sex should have more to do in the perpetuation of the species than the other.†

The causes of impotence in woman are malformations or diseases of the sexual organs. Some of these causes are apparent, others obscure. The apparent causes are, obliteration of the external sexual organs, both soft and bony, absence of the vagina and uterus, and great deformity of the pelvis, with numerous diseases of the external and internal genitals. The vagina and uterus have been found to consist of a dense, fleshy substance, (Morgagni, Mott, Foderé,) and the vagina has been partially closed by such substance. (Parè, Ruysch, Fabricius, Physick, Foderé.) It may be absent (Haller, Vicq. d'Azyr, Journ. des Savans, Boyer, Caillot, and Willaume,) unusually small, impervious from adhesion, tumours, or a frœnum passing across above the hymen, or it may be filled with a fleshy growth. If too narrow, it may be dilated with a bougie or a sponge tent, and when unattended to, must be divided by incision, to admit the passage of the infant. The orifice may cohere after conception. There is sometimes a great congenital confusion of parts, so much so, that it would be tedious to describe them. In cases of extreme narrowness, impregnation may take place, and the canal be gradually dilated during parturition. I have seen four cases of cohesion of the labia externa, at the age of puberty, so complete, that only a small probe could be introduced at the superior commissure. The vaginal canal may be totally or partially obliterated, and in such cases an operation is impracticable, and impotence absolute. The vagina has opened into the bladder (Sue), rectum, anterior parietes of the abdomen, and pregnancy has occurred in the two latter cases. Morgagni attests that of the abdomen, lib. v. epist. 67; and the other is given in the Annales de Med. de Montpellier, which led the celebrated Louis to purpose the following question to the casuists:—" An uxore sic disposita uti fas vel non, judicent theologi morales?" Barbaut cites two examples of pregnancy of this kind. (Dict. des Sc. Med., art. Impuissance.) Orfila contends, such malformation is a cause of impotence; for though coition is not physically impossible, it is contrary to the laws of morals and of nature. The royal court of Treves annulled a marriage in such a case. Dupuytren, and others, have lately described cases in which the infant passed through the rectum, and without laceration of the sphincter ani. In cases of vesico-vaginal, recto-vaginal fistulæ, and amplification of the vagina from laceration of the perineum, inflammation and ulceration may occur and impede sexual intercourse; but such cases could not warrant a divorce, when they occur after marriage. Excessive straitness, or partial occlusion of the vagina, are not impediments to procreation, as fecundation may occur, if the spermatic fluid be applied inside the labia, as already mentioned. Besides, fecundation has happened, and the hymen perfect. (Ruysch, Parè, Smellie, Hildanus, Mauriceau, Boudelocque, Nægele, Nysten, Journ. de Med. de Corvisart, and Leroux.) Prolapsus, and some forms of ulceration of the vagina, are only temporary causes of impotence. Cauliflower tumours of the clitoris or nymphæ may be temporary causes of impotence, as also tumours in the vagina.

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* See also Professor Quain's Anatomy.

† In general it is said, that there are less men impotent than women sterile, because the most feeble sex is predisposed to more natural imperfections. This assertion however remains to be proved.

(Burns, Trans. Dublin College of Phys. 1824, vol. iv.; Edinburgh Med. and Surg. Journ., 1805.) Leucorrhœa is one of the most common causes of sterility.

A case occurred at the Obstetric Hospital at Turin, of a woman whose genital aperture was impervious. She appeared to be in labour; a tumour pressed on the perineum, and Professor Rossi was summoned to attend. He distinguished the head of the infant, cut over it, and parturition was speedily completed. He inquired how conception had been accomplished, and he was informed, that the husband, not finding what he desired, took the opposite route. On examination, there was found a congenital recto-vaginal fistula.—*Dict. des. Sciences, Medicales. Art. Impuissance.*

When recto-vaginal fistula is the result of disease, it is accompanied by inflammation or ulceration, it is scarcely possible to suppose that coition could be accomplished. M. Marc attended a prostitute affected with recto-vaginal fistula, who continued her mode of life, and became the mother of two infants. He does not state whether the aperture was congenital or accidental.*

Another remarkable case of impotence is mentioned by Van Swieten, who quotes Benevoli. In this case the vagina was no larger than a goose-quill, in all its extent. The woman was married, and all the efforts of a vigorous husband were useless. The vagina was scirrhous. Fomentations were employed, and pessaries of different sizes successively introduced, and, after some time, the woman was rendered capable of cohabiting with her husband.

Foderè relates a case nearly similar to the last. A girl of sixteen married, whose vagina could scarcely admit a goose-quill. She suffered great pain during each menstrual period, accompanied by distension of the womb, and the menses escaped at the superior part of the aperture. A young and vigorous husband employed his talents in vain, and the medical advisers declared copulation impracticable. Nevertheless, after the lapse of eleven years, the woman became pregnant, though the vagina remained as small as before. It was feared that parturition could not take place; but, after the fifth month of pregnancy, the vagina began to dilate, and, towards the end of the ninth month, allowed the passage of the infant.—*Mem. Acad. des Sc. Paris,* 1712. *Foderé, T.* 1.

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* Dr. Thomson attests a similar fact in his Lectures on Medical Jurisprudence, published in my Journal, 1834, and 1835. Vol. VI.

In proof of the dilatability of mucous canals, the following case may be cited. It is related by M. Latour, in a medical journal published at Orleans. A peasant, whose wife was sterile, substituted the urethra for the vagina. He dilated the former by mechanical means, progressively employed, until he accomplished his object. The result was incontinence of urine, which led the woman to apply for medical advice, when the cause of her complaint was ascertained.—Marc. *op. cit.*

I have given the history of a case, which is somewhat similar to the preceding, and which will be found in my Manual of Obstetricy. The woman was affected with vesico-vaginal, and recto-vaginal fistulæ, both of which I succeeded in closing without any cutting operation. A ligamentous band so diminished the vagina, that it was with difficulty that the top of the fore-finger could be introduced. I proposed to incise it, but the patient refused. She returned to her husband, and in a year he succeeded in dilating the vagina; but so firm was the band, that he re-opened the vesico-vaginal fistula. Inflammation and ulceration followed—a calculus formed in the opening which I extracted; sedative injections and other appropriate means were employed; the health was restored; and the woman now supposes herself two months pregnant. Mr. Thurnam, the apothecary to the Westminister Hospital, and several students, saw this patient at the Western Dispensary, in 1835.

The celebrated Pucelle, Joan of Arc, was examined by two physicians, who found the vagina so contracted, that coition was impracticable. Dr. Thomson attended a lady, who also had consulted Sir Charles Clarke, for whom various means were employed to allay irritation, and effect dilatation in vain, and she would have applied for a divorce unless she had been allowed to retain her fortune, which was considerable.

The uterus may be absent. (Columbus, Schlegel, Morgagni, Meyer, Renauldin, Hamilton, Bosquet, Theden, Engel, Lieutaud, Caillot, Ford, and Breschet.) I might quote numerous writers who describe the cavity of the uterus divided by a septum, but it is not stated whether or not procreation was impeded. Many authors have also described partial or total obliteration of the uterine cavity, among whom are Bichat, Lallemend, Segard, Gardien, &c. The uterus may be double, that is, there may be two uteri. (Haller, Purcell, Med. Facts, vol. iii. Mem. Med. Science, vol. iv. Lond. Med. Journal, 1782, vol. iii. Dict. des Sc. Med. Medical Transactions, vol. vi. Dugès, Journal de Proges, vol. xxii.) A vicious direction of the os and cervix uteri, or complete occlusion of the former, are irremediable causes of impotence and sterility. The whole of the causes of impotence and sterility in women may be arranged under three classes :—

1. Those depending on the organs which receive the male fluid, namely, the genital fissure, the vagina, and uterus.

2. Malformation, or diseases of the organs that transmit it to the ovaries, and reconvey the embryo to the uterus, and these are the fallopian or uterine tubes.

3. The malformation, or diseases of the ovaries, or organs which supply the germ for fecundation.

Inflammation, ulceration, scirrhus, cancer, ossification, calcareous deposit, or tumours in any of these organs, may be the cause of sterility. In fact, any disease of the female genitals, attended with much constitutional disturbance, may be held a temporary cause of sterility. Tumours of various kinds, callosities, cicatrices, adhesions, from disease or mechanical violence, displacement of the uterus, prolapsus, procidentia, retroversion, antiversion, lateral obliquity, and the various disorganizations incident to muscular, serous, and mucous tissues, when present in the female organs, are causes of sterility. Among the temporary causes of female impotence, are excessive dimensions of the clitoris and nymphæ; but these are removable by operation.

Some authors are of opinion, that the cavity and outlet of the pelvis may be so deformed, or diminished by soft or bony tumours, as to prevent coition; while others maintain the contrary. When the pelvis is greatly deformed, the lives of the fœtus, and of the mother, may be endangered or destroyed during parturition; and moralists advise celibacy.

Scirrhus, cancer, and many other diseases of the uterus and ovaries are causes of sterility. Morgagni relates a case, in which M. Gianella was called to deliver a woman aged forty years, in whom the vagina opened through the anterior wall of the abdomen, and the aperture was dilated to admit the passage of the infant.

In the London Medical and Surgical Journal, 1830, vol. iv. is an account of two singular cases of procidentia uteri; in both impregnation was effected through the natural orifice, though permanently fixed for years several inches external to the genital fissure. I have also published cases of dysmenorrhœa, in which pregnancy occurred. In the disease called irritable uterus, so well described by Gooch and others, a cure may be affected. In the absence of the ovaries and uterine tubes there can be no conception; or in dropsy, or enlargement of both ovaries, when their whole tissue is diseased; or in occlusion or adhesion of the tubes to the uterus or adjoining parts.* There are some cases of constitutional sterility which are inexplicable; for example, those in which a woman has had no family for years, and at length becomes a mother.

The principal moral causes of impotence, are hatred, disgust, fear, timidity, an excessive ardour of desire, divers ramblings of the imagination; in a word, passion strongly excited, that is to say, all cerebral action so strong as to diminish that of the genital organs, which require for coition great exaltation. Foderè is of opinion that complaisance, tranquillity, silence, and secresy are necessary for a prolific coition; it is arrested, as if by enchantment, by noise, dread, fear, publicity, jealousy, contempt, repugnance, slovenliness, by too much respect, and by every thing that can excite the imagination. Many of the causes of impotence in both sexes may be removed, but many are beyond the reach of art. It has been long maintained, that the powers of the mind have great influence in promoting and impeding the process of procreation.

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* Mr. Travers exhibited both ovaries very much enlarged, and according to the statement made to me by a friend who saw them, diseased in every part, though they were removed from the body of a lady, who died a few days after delivery. I should suppose there was a portion of one ovary, or an ovum, in a healthy condition at the time of conception, and the disease advanced during pregnancy, in consequence of the determination of blood to the pelvic organs.

Excessive venery is a common cause of sterility in women. The debility of the uterine system by promiscuous and too frequent coition is the cause of sterility in prostitutes. But when these reform, and marry, and confine themselves to one individual, the uterus regains its power, and conception occurs. Many proofs of this were given by prostitutes, who were transported to Van Dieman's Land, and became mothers.

The constitution undergoes changes favourable to fecundity. Thus we often see women who bear children, after having been barren for ten or twenty years. Others have a family without experiencing any enjoyment during coition; and some who suffer the embraces of their husbands with pain or disgust.

Besides the numerous diseases of the genital organs which are absolutely opposed to marriage, the following must be included:—

1. The different degrees of imbecility or fatuity, although this state may not be absolute; mania, even with long lucid intervals, which may induce a husband to lay violent hands on his wife or infants, or even murder them.

2. Epilepsy, which has continued after puberty, and has not yielded to medicines. This disease is often aggravated by sexual pleasure, and may end in mania, or in idiocy, or apoplexy; it not only passes from generation to generation, but may be excited in others by terror, or by intimidation in schools.

3. Hæmoptysis, or spitting of blood, and consumption, are aggravated by venery; and those affected with the latter disease are much inclined to this pleasure.

4. Syphilis and leprosy, which may be transmitted to offspring.

When persons have no sexual desire, or when there are physical defects of their organs which cannot be remedied by surgical operation, they commit a great moral offence on entering into marriage, by depriving another of those conjugal rights which nature has established.

From the statements in the works referred to, we may, I think, deduce the following general principles:—

First. To declare either sex impotent, it is necessary that certain physical causes be permanent, malformations, or accidental lesions, and be evident to our senses, which art cannot remedy, and which prevent the faculty of exercising a fecundating coition.

Secondly. These causes, when rigorously examined, are few in number.

Thirdly. The moral causes of impotence ought not to be taken into consideration, as they would serve as an excuse for an individual accused of impotence.

Fourthly. That if there is the slightest penetration into the vagina, it is sufficient to excite in the other sex a degree of erethism necessary for fecundation; or if the spermatic fluid is applied at the entrance of the vagina, virile impotence cannot be admitted.

In this country, the medical jurist is seldom required to decide questions of impotence or sterility in our courts of justice; but every medical practitioner may be consulted in private practice, either before or after matrimonial engagements. He may be the cause of great domestic trouble, and may embitter the life of male or female. He should be exceedingly cautious in fixing the stigma of impotence or sterility on either party. The legitimacy of children may be contested on a plea of impotence, and such a plea may be offered by a man accused of a rape. It is therefore evident that a proper knowledge of the subject is necessary to the medical practitioner.

Ambiguity of Sex.—Hermaphrodites.—There may be malformation of the genitals in both sexes, but there is no example of one individual possessing the perfect organs of both. Again, the organs may not resemble those of either male or female. There is no truth in the statement, that hermaphrodites have married and propagated, the obstetrician is aware of the physical impossibility of a full-grown infant passing through the male pelvis. It is evident that hermaphrodites must be impotent and sterile. The ancients were of opinion that such persons might propagate; even a canonist went so far as to maintain, that one individual could propagate within himself or herself—"tanquam mas generare ex alio, et tanquam fœmina generare in se ipsa." There is no case on record of a perfect hermaphrodite, and no truth whatever in the assertion that such class of beings can propagate the species.

I can see no difficulty in supposing that persons of both sexes, with malformation of the genital organs may marry, when I recollect the curious and well-attested case of a female who dressed in male attire, and assumed the name of James Allen, married another female, and lived as a husband for several years without detection. This case happened in London in 1829, and was discovered when Allen died, and on dissection was found to be a well formed female. Blackstone says, "a monster having deformity in any part of its body, yet if it hath human shape, may inherit; and every heir is male or female, or hermaphrodite, that is, both male and female; and shall be heir according to that kind of sex which doth prevail, and accordingly it ought to be baptized. The same is observed in cases concerning tenants by curtesy. Such individuals cannot be admitted into holy orders, or become judges."

It is worthy of remark, that, until the commencement of the eighteenth century, it was believed by some very eminent medical authors, that monsters were formed by the operation of a demon. (Licetus, in his Treatise on Monsters, 1616). Riolan, one of the most distinguished writers of the seventeenth century, was also of this opinion:—"As to monsters made after the image of the devil, if allowed to live, they ought to be confined in a close dark chamber. In fine, those who are half human and half animal, they ought to be put to death." This was the law of the Twelve Tables at Rome, and even of the Athenians. Even the celebrated Ambrose Paré considered that the birth of a monster was the sign of some approaching misfortune. These writers knew nothing of Teratologie, which treats of the arrest, retardment, or excess of developement, so luminously described by the illustrious

M. Isodore Geoffroy, Saint Hillaire; and which proves that monsters, or deformed animals, are to be ascribed to natural causes.

As the brain is generally perfect in monsters, and the mind sound, it is clear that such persons ought to inherit property. When two perfect bodies are united at the chest or back, as the Siamese twins and Hungarian sisters:

> "Non duo sunt, sed forma duplex; nec fœmina dici,
> Nec puer ut possit, neutrumque et utrumque videtur."
>
> OVID.

The following cases of concealment of sex show the deceptions which may be practised on the public for many years without detection.

The following is a correct copy of the inquest held upon James Allen's body, as given in the *Times* Newspaper, 1829.

An inquest of a singular and mysterious nature took place at St. Thomas's Hospital, before Mr. Thomas Shelton, Coroner, relating to a person named James Allen, aged forty-two. The deceased expired on the way to the hospital, and on examination by the medical gentlemen was found to be of the female sex. The utmost curiosity was excited, and the whole of the hospital pupils crowded into the Jury-room.

Evidence commenced.—William Shrieve, a sawyer in the employment of Mr. Crisp, of Dockhead, had known the deceased for two years. On Monday he was at work with him at a saw-pit in Mill-street, Dockhead, and a piece of timber falling on his head occasioned his death; he was quite sober at the time. Deceased had a weakly voice, and neither beard nor whiskers; always understood he was a married man, and had been so upwards of twenty-one years. Within the last six months his sex had been doubted, and he was considered an hermaphrodite. The wife is a hard-working woman, but believes they did not live on good terms together; it was said that he sometimes used her ill. The deceased and his wife parted two or three times on account of the former being jealous. They never had any children.

Jane Daley deposed, that she had known the deceased a number of years. Witness never doubted the sex of the deceased till lately, when his wife said, "She was sure her Jemmy was not a proper man;" he, the woman-husband, treated his wife very ill at times, and witness often advised her to leave him as a worthless, good-for-nothing thing, who was not the quarter of a man. I am sure they were married, I have seen the certificate; the ceremony took place at Camberwell church. I can swear that the wife is a real woman; I am firmly of opinion that she never knew man, and is as innocent as my grand-daughter. I am certain she did not find out her mistake till lately, how she had been imposed upon! she is a woman of ten thousand.

Mr. John Martin, dresser to Mr. Key, testified the body to be that of a female, perfect in every respect.

The Jury expressed a wish to have the widow examined, but the Coroner said, they had only to inquire into the cause of deceased's death, which had been satisfactorily accounted for, and their duty was at an end.

The Foreman of the Jury said, he should certainly wish to inquire fully into so extraordinary an occurrence; there is no doubt something in the back ground which they have not arrived at.

The Coroner observed, that the circumstance was one of an extraordinary description, but still they had not to develope it.

After further discussion, a verdict was returned, "That the deceased was accidentally killed." The wife of the deceased was present in the inquest-room.

The wife swore positively, that she did not know the sex of her husband, but considered him an imperfect man or a hermaphrodite. He never caressed her, and when she declared her doubts of his manhood, he became angry and jealous. The body was examined, and found to be that of a woman. The parties were married at Camberwell church, on the 13th of December, 1808.

The following horrible case deserves notice.

The revolting case of Edwards is, perhaps, one of the most extraordinary instances of imposture and vice in the annals of crime. I quote it from the reports of the public press, and also in part from one of the medical periodicals·

The Coroner's Inquest.

On Wednesday evening, January 23, 1833, an inquisition was held before Mr. Higgs, at the Coach and Horses, Flood-street, Dean's-yard, Westminster, on the body of a person who has been known for years by the name of Lavinia Edwards, about thirty-four years of age, who died under the following extraordinary circumstances. The inquiry was instituted by order of Lord Melbourne, then Secretary of State for the Home Department, who was of opinion that there were circumstances in the case which required a public investigation. The deceased and sister resided in Union-court, Orchard-street, Westminster, and both were supposed to be kept women. Last week the deceased died; and, there being no claimants for the body, it was sent to Guy's Hospital for dissection, when it was at once discovered, to the surprise of every one, that the deceased was a perfect man. The case excited the greatest interest; a coroner's inquest was summoned, and the jury-room was crowded to excess.

After the jury were sworn, they proceeded to view the body of the deceased, which was removed to St. Margaret's workhouse, Westminster. It was of very effeminate appearance; there was no sign of a beard beyond that of a boy of seventeen, and the whiskers seemed as if they had been plucked out with a pair of tweezers. The hair of the head was light brown, and upwards of two feet long behind, of a soft glossy texture, and the whole appearance of the countenance was that of a female.

Dr. Clutterbuck, of New Bridge-street, Blackfriars, stated, that he had examined the body of the deceased in St. Margaret's workhouse, at the request of Dr. Somerville, the Inspector of Anatomy, who was desirous that he should identify the body, as that of the person whom he had attended a few weeks before, under the name of Lavinia Edwards, at her lodgings near the Coburg Theatre. He had attended the deceased for inflammation on the lungs. He had no idea that the deceased was not a woman. He had attended her previously at the request of a gentleman named Smith, under whose protection the deceased lived, and who paid him several fees for his attendance. The deceased had always a very effeminate appearance, and a kind of cracked voice, not unlike a woman's.

Juror.—In what situation was the deceased three years ago?—I was informed much better off than he was latterly.

Juror.—Who is this Mr. Smith, who kept the deceased?—I believe he has gone abroad, in the service of the Canada Company.

Juror.—Did Mr. Smith desert the deceased?—I understand that he did.

Maria Edwards, who passed as the deceased's sister, was next examined. She stated that she was born in Dublin, and was seventeen years old. She had lived with the deceased constantly for the last ten years. The deceased was a performer on the stage, and travelled about the country, and played female characters. Witness mostly slept with the deceased.

Coroner.—How long have you been in London?—We have been about three years.

Coroner.—How was the deceased supported during this time?—By different gentlemen.

Coroner.—Where did you reside prior to coming to London?—At Leatherhead, about six months.

Juror.—How do you know that the deceased was your sister?—My mother told me so, and we lived together.

Juror.—Do you know any of the gentlemen who visited the deceased?—I remember a gentleman named Smith coming to see her, when we lived in the Westminster-road.

Juror.—Any person else?—Yes, a Mr. Grimstead, who is gone to Italy. He formerly lived at Leatherhead.

Juror.—Will you undertake to say, that you did not know of what sex the deceased was?—I always thought her to be a female, and never knew to the contrary.

Juror.—How long have you lived in Union-court?—About three weeks, during which time she was confined to her bed, and wanted the common necessaries of life.

Juror.—Did you make application to the parish for relief?—I did, and received a trifle.

By the Coroner.—Last Wednesday night she went to bed with a wheezing in her throat, and very ill. About three, the deceased called me up, and said, "Maria, I am dying; it has pleased God to call me;" and in about five minutes the deceased expired. The deceased had beautiful long hair, which hung in ringlets, and in the country she played under the name of Miss Edwards, in the first line of tragedy.

Juror.—Did the deceased ever perform in London?—Never: the last place she played at was Tewkesbury.

Juror.—Did she ever play under any other name?—Yes, under the name of Miss Walstein.

It appeared from one of the letters read by the sister, that she was introduced on the stage by the celebrated Talma.

Mary Mortimer, a tall masculine female, residing in Union-court, stated that she had known deceased about ten or eleven years. Never knew her sex until the present day. She had every reason to believe that the deceased died a natural death.

Juror.—Will you swear that you did not know the sex of the deceased?—I will. She always appeared as a most lady-like woman, and has performed at the Norwich Theatre. I have slept with the deceased repeatedly, and never, for a moment, supposed that she was a man.

The coroner and jury expressed their greatest astonishment at the evidence adduced.

Mrs. Shellett stated, that she collected the rents in Union-court. The deceased and her sister were not very regular in the payment of their rent. Witness heard the deceased cough, and thought at the time that it was a man. In answer to further questions, the witness identified the body to the satisfaction of the jury.

Juror.—It is almost impossible.

Another Juror.—Look at the head of hair, and the ears pieced for ear-rings.

Juror.—It is the most extraordinary case I ever met with; I almost doubt the evidence of my own senses.

Coroner.—It is extraordinary.

A long conversation now took place amongst the jury; and at last further evidence was called in, and completely satisfied every one that it was the same body. A number of letters and other documents, found in the possession of the deceased, were read to the jury, by which it appeared that she had passed under various names. The documents excited the most intense interest.

Maria Edwards was again recalled and examined In answer to questions, she said she was only seventeen years of age. She never knew the deceased to use a razor or a pair of tweezers. Was positive that *she* never shaved.

Coroner.—This appears to be one of the most horrible cases of depravity I ever met with.

A juror said, that although there was no doubt of the identity of the body, he considered it disrespectful in not having the attendance of the medical gentlemen from Guy's Hospital, and he thought they ought to adjourn; which was agreed to, until the following evening.

Several letters were read during the inquest, which implicated persons of wealth in the most horrible of crimes.

Second meeting of the Coroner's Inquest.

Thursday evening, at eight o'clock, Mr. Higgs and the jury re-assembled at the sign of the Coach and Horses, Flood street, Dean's yard, Westminster, to inquire into the death of a person known by the name of Lavinia Edwards, aged 34. On the arrival of the coroner, a most tremendous rush was made to gain admittance into the jury-room, by crowds of persons who had assembled outside, principally consisting of medical students; the crowd was so great that it was at last found necessary to send for the police authorities to keep order, as the witnesses could not gain admittance. Previous to the meeting of the jury, a number of medical gentlemen viewed the body of the deceased.

The first witness sworn, was Mr. Alfred Taylor, of 35, Great Marlborough Street, surgeon and lecturer on medical jurisprudence at Guy's Hospital. He stated that he had examined the body of the deceased, and it was the same that he had seen in the dissecting room at Guy's Hospital. On opening the stomach he found it perfectly healthy: the liver was much diseased, and presented that appearance seen in persons addicted to drinking, commonly called a drunkard's liver. The death was occasioned from disease of the lungs. The deceased was a perfect man.

Juror.—Has the head of the deceased been separated from the body?—It has not.

Some other questions were put to the witness, which excited the greatest astonishment from the answers.

Mr. Ollier, surgeon, of Delahay-street, Westminster, corroborated the evidence of the last witness. In addition, he said that the body was covered with venereal blotches.

Thomas Davis, the porter at Guy's Hospital, stated, that on Sunday morning last, Nicholson, the beadle of this parish, brought two bodies to the hospital; there were printed forms with them according to the late Act of Parliament, and they were described to be females. On examination, he found that one of the bodies was that of a man, and he had seen the body again that afternoon in St. Margaret's workhouse.

Coroner.—Did you notice the hair on the head of the deceased?—I did; it was very long in front as well as behind, and turned apart like a female's.

Juror.—How long was it before you discovered that the deceased was a man?—About four hours. I was certainly very much surprised.

Mr. Ollier, the surgeon, said, that as soon as it was known at Guy's Hospital that the deceased was a man, information was sent to the parish authorities, and from that the inquiry took place.

A juror said that it appeared to him to be a most extraordinary case of depravity, and he was of opinion that the body ought not to be buried in the usual way, and that some proceeding should be adopted to warn others from such unparalleled acts of turpitude, which reflected the highest disgrace on human nature.

A person here stepped forward, and said, that from what he had seen in the newspapers, and understanding that the deceased came from Dublin, he was satisfied that he knew the party. About twelve or thirteen years ago, the deceased sometimes passed for a man and sometimes a woman. He had lately performed on the stage in the country in the principal tragic characters.

Juror.—Did you know his sister?—I never knew that the deceased had a sister.

Another gentleman stepped forward, and said that he believed he knew the party, and that the father was a gunsmith in Dublin. The room was ordered to be cleared of strangers, but from the great crowd, this was found impossible, and the jury retired to an adjoining room, and after a few minutes' consultation, the following verdict was returned:—'That the deceased died by the visitation of God; and in returning this verdict, the jury are compelled to express their horror at the unnatural conduct the deceased had evidently indulged in; and strongly recommend to the proper authorities, that some means may be adopted in the disposal of the body which will mark the ignominy of the crime.'

The suppressed evidence given before the Coroner, but omitted by the daily press.

Maria Edwards, the supposed sister of the deceased, stated that her sister always supported her, and behaved to her in the most affectionate manner. Witness never went out in the streets herself, until her poor sister was taken ill, and unable to support herself: her sister would never let her go out. When she was taken ill, about two months ago, witness was compelled to go out and pick up men to support her sister.

Juror.—Did she say any thing to you when you went out?—Oh, yes, sir; she could not bear the idea. It almost broke my poor sister's heart, she was so fond of me.

Juror.—When your sister went out, where did she walk?—At different places—sometimes she walked in the Haymarket, Jermyn-street, and the Quadrant.

Juror.—Did she often bring gentlemen home with her when she went out?—Very frequently.

Juror.—What sort of persons did they appear to be?—Quite gentlemen, sir.

Juror.—When your sister brought a gentlemen home, what did you do?—I always walked out of the room, and left them by themselves.

Juror.—How long did they remain together?—Sometimes a long time—perhaps an hour or two.

Juror.—Did you ever hear any noise or disturbance in the room?—did you ever hear any quarrelling?—Never, sir, that I remember.

Juror.—Did the gentlemen give your sister money?—Yes, sir.

Juror.—Did you know the names of any of the gentlemen?—I did not, sir,—only their christian names.

Juror.—Did any of the gentlemen ever come a second time to visit your sister?—Oh, yes, sir.

Juror.—And on your oath, you positively never knew that the person you call your sister was a man?—Oh dear, no sir!—I had no idea of it.

Mr. Taylor, one of the surgeons of Guy's Hospital, in addition to what has already appeared, described to the Jury the organs of generation of the deceased, which he had minutely examined.—The penis was six inches and a quarter long, and the testicles of the usual size:—the rectum was unusually large, and a halfpenny might be dropped into it. There was not the slightest doubt in the minds of the Jury as to the horrible practices of the deceased.

Mr. Ollier, surgeon, of Delahay-street, in addition, said that the body of the deceased was covered with sores, arising from venereal disease.

The Jury were horror-struck with the evidence adduced, as no person could possibly imagine how a person could have carried on such detestable practices for such a length of time, without being discovered.

After the verdict of the Jury had been returned in the case of the being who passed as Lavinia Edwards, a consultation took place amongst the parish authorities as to the disposal of the body, when it was agreed that it should be sent back to Guy's Hospital, which was carried into execution the same night. The young woman named Maria Edwards, who has always passed as the sister of the deceased, was taken care of in St. Margaret's workhouse, by order of the overseers; and all documents and papers which had been read before the Jury, were given up to her, which she immediately burnt. The supposed sister is far advanced in pregnancy, and on Friday she underwent a rigid examination before the parochial board, and she still persisted that she never knew the deceased to be a man, or had the slightest suspicion that such was the case. In answer to further questions, she said that the father of the child with which she was pregnant, was a young man, a harness-maker by trade, who lived at the west end of the town.

On further questioning the sister, she said, that a few years ago, the deceased was visited by a number of gentlemen, but she did not know their names, with the exception of those she had mentioned on the inquest. They all appeared to her to be very rich. Latterly, the deceased had been reduced to the greatest state of distress. Within the last two or three years he has been well known on the Surrey side of the water, particularly in the neighbourhood of the Cobourg Theatre; but the habits of the deceased have been very profligate and dissipated. At the different wine-vaults in the vicinity of the Theatre *she* was well known in *her* assumed character of a woman; and, for a glass or two of gin, would recite passages from Shakspeare and other dramatic authors, with considerable talent.

The supposed sister, Maria, still continues a subject of great interest in the parish of St. Margaret's, Westminster; and numbers of persons have applied to see her. She most pertinaciously insists that she never knew the deceased to be a man; and asserts, that the name of the father of the child of which she is now pregnant, is Treherne, a harness-maker, at the west end of the town. She has been several times examined before the Parish Board, but nothing shakes her testimony; and she states that she is willing to swear the child immediately to him. There is, however, a very strong suspicion that the deceased is the father; and further inquiries into this most extraordinary and unheard of case is still making by the parish authorities; but every thing tends to prove the horrible practices of the deceased.

Autopsic examination of the body, by Mr. Alfred Taylor.

During the last month, a case has occurred of a somewhat novel nature in the annals of imposture, which has greatly excited the curiosity both of the public and the profession; on this account, its details may not prove uninteresting to our readers.

It appears, that a short time since, the body of an individual, supposed to be that of a female of the name of Lavinia Edwards, was sent to the workhouse of St. Margaret's, Westminster, was brought from a low brothel in the neighbourhood; but no particular history was given of the deceased, and the body being considered among the 'unclaimed' of the parish, was, by order of the Inspector of Anatomy for London, sent to Guy's Hospital for dissection. The certificate represented it to be that of a female, and it was received by the keeper of the dissecting room as such; but a few hours after its admission, it was discovered to be the body of a full grown male. Notice was given, as speedily as possible, to the authorities of the parish of St. Margaret's, in order to rectify any supposed mistake; and in the mean time, no prohibition existing to the contrary, the dissection was continued by those gentlemen to whom the body was assigned. An order was afterwards issued by the inspector for its removal, an inquest was held on the body in consequence of some suspicion being raised respecting the real cause of the death of this individual. Many extraordinary particulars regarding the life and habits of the deceased, now came to light.

It appeared that he had first assumed female attire about the age of fourteen, and having chosen a theatrical life, he represented female characters on the stage, in first parts, and subsequently in the theatres of many of the great provincial towns of England. No suspicion seems to have arisen respecting his sex, and he passed off with the public as a female.

There is no doubt that many were acquainted with the real history of this impostor. But the secret seems to have been kept most inviolably; indeed, it was only in consequence of some letters having been accidentally found in his bed room after death, that so much of his history has become known to the public.

A short time previously to his death, he had been attended by a physician for a disease of the lungs, and so accurately was the imposition maintained, that his medical attendant did not entertain a suspicion of the real sex of his patient. He had been sent as a female when dead to the workhouse; he had been there received as such, and his body afterwards conveyed to the hospital, where the imposture was first detected.

These facts have led many to believe that it was a case of sexual ambiguity; but so far from this, a simple inspection of the exterior of the body would have sufficed to remove all doubts upon the subject. The features were somewhat of a feminine character; the hair was long, and like that of a female, parted in the middle of the forehead. These were the only points in which any resemblance to the other sex could be traced. A great part of the beard and whiskers had evidently been plucked out, and the hair which grew under the chin had been dexterously concealed by the peculiar head-dress which he wore during life.

The deceased was about thirty-four years of age at the time of death, and it appears that his voice had been remarked by several witnesses to be hoarse and peculiar, though not unlike that of many females at the middle period of life.

On the twenty-fourth of January, I was called upon officially to examine the body of the deceased, in order to ascertain the cause of death. With the exception of the appearances already described, it had every character of that of a full-grown male. There were no mammæ, the male sexual organs were perfectly developed, and the lower extremities exhibited those prominencies of the muscles and bones characteristic of the male sex. The upper extremities were somewhat slender and tapering, and the hands had evidently been unused to hard manual labour. Having laid open the thorax, the lungs were found considerably diseased, and adhering to the internal parieties of that cavity, they felt hard and tuberculated, and upon making a section through each, it presented a series of small abscesses filled with matter. There was scarcely a portion of the organs which could be termed healthy: the pericardium contained a larger quantity of serous fluid than usual; but the heart was free from any appearances of disease, although somewhat large. Upon opening the abdomen, the liver was found greatly enlarged, of a pale nutmeg colour, and presenting the appearance commonly observed in the bodies of individuals who have been addicted to the use of spirituous liquors. The stomach was distended with about a pint of fluid, presenting nothing remarkable in smell or colour; its coats, both internally and externally, were healthy. No trace of inflammation could be perceived in any part of the alimentary canal, nor was there any poison to be discovered in the fluid contents of the viscera; indeed, the suspicion of poisoning was clearly negatived by the history of the symptoms immediately preceding the death of the deceased, and by the fact of his having been attended to the last by a physician who prescribed for him, and watched the progress of his case. The other viscera of the abdomen were found in a healthy state; the internal organs of generation were perfect, and the contents of the pelvis presented no ambiguity either in form or disposition.

It is the opinion of those who were present on the examination, that the deceased had been living for nine years in the lowest state of infamy, and that he had probably assumed and maintained the disguise of a female in order more effectually to conceal his nefarious practices.

Before the Coroner, it was simply stated that he had died from disease of the lungs; and, after some irrelevant evidence had been gone into, the Jury returned a verdict accordingly.

Another Singular Case of a Reputed Hermaphrodite.

The following case may be put in juxta-position with that of Lavinia Edwards:—"At a Quarter-Sessions at Taunton, in Somersetshire, Mary Hamilton, otherwise Charles, otherwise George Hamilton, was tried for pretending to be a man, and marrying *fourteen wives*, the last of whom, Mary Price, deposed in court, that she was married to the prisoner, and bedded and lived as a man and wife a quarter of a year, during which time she thought the prisoner a man, owing to her vile and deceitful practices. After a debate upon the nature of the crime, and what to call it, the court agreed that she was a most infamous and notorious cheat, and sentenced her to be whipped in Taunton, Glastonbury, Wells, and Shepton Mallett; to be imprisoned for six months, and to find security for her good behaviour for so long a period as the justices at the next Quarter Sessions should think fit.—*From Boyle's Chronicle*, 1746.

A gentleman, now resident in Taunton, had an account of the evidence in the case from two persons who attended the trial, one of them as a juryman. The arts which the impostor practised were as curious as revolting, but of course are unfit for publication. Her object was to obtain the property the females possessed; and that being accomplished, she disappeared to practise her arts in other situations, and which she did successfully for some years. At the trial, those of the first thirteen wives who gave evidence, deposed that they entertained no doubt whatever but that the prisoner was of the male sex: but Mary Price, the fourteenth, who was the first widow whom the prisoner married, discovered the imposition after three months' cohabitation. The motive for reviving this ancient and extraordinary case, is compassion for the respectable individuals whose names have been introduced to the public in the investigation as to Lavinia Edwards, and to show the possibility of imposition as much in one case as the other, though their conduct was so horrible.

Colonel Anne Gulstrade, in the Imperial Austrian service, is another singular instance of assumed sex. There are also examples of women who assumed the attire of sailors, and performed all the labours of such persons. One of these is now receiving a pension from our gracious sovereign, King William IV. and her history is fresh in the recollection of the British public.

CHAPTER II.

UTERO-GESTATION.—PREGNANCY.

This is a subject which requires great attention from the medical jurist, on account of the numerous relations it has to civil and criminal proceedings. It affects the honour and reputation of husband and wife, the peace of families, and the moral character of society; it arrests the administration of justice, when offered as a plea for reprieve; it aggravates an assault when abortion occurs, which renders the crime a felony; it may be pretended, and deception attempted on the medical attendant, and others; or the woman may accuse a person of causing abortion; it may be concealed, and it may affect the honour and property of parents and children, as in its protracted state, which involves legitimacy.

Under this section we have to consider the age at which pregnancy is possible, and after which it cannot occur; and that at which the male is capable of procreation. Decisions on these points may be called for in cases of disputed paternity, bastardy, or infanticide. Sir E. Home describes cases of pregnancy in this country at twelve and thirteen years, and I have known one at twelve years and a half. Dr. Montgomery describes the case of a lady of fifteen, who was the mother of twins. There was a girl, aged nine years, a mother in France; and during the sanguinary revolution in that country, girls of ten and eleven years were pregnant, and admitted into the Maternity. Again, a question may arise as to the latest period of pregnancy, and whether it is possible for a woman to bring forth an infant at the age of sixty years, in this or other climates. Such a case was tried in the Court of Chancery in 1834.

There is a case related in the Edinburgh Annual Register of 1816, of a woman aged fifty-four, who was delivered of female twins. Dr. Mosse, of Dublin, describes a similar case; and Marra, an Italian physician, treated a woman, aged sixty, for dropsy, but he was deceived, for she was pregnant. Haller mentions cases of pregnancy at the age of seventy. It is also on record that a boy, aged seven years, who was precociously developed, was capable of performing the genital function; and Thomas Parr was compelled to do penance at one of the churches at the age of one hundred and twenty, for an amour, the result of which was a bastard.

Again, women have married a few days after the death of their husbands, which now rarely happens, but in one case of an Italian, whose husband died of plague two days after his marriage, the wife obtained a dispensation and married; and in two hundred and seventy-three days after the death of her first husband, and two hundred and sixty-eight days after the marriage she brought forth an infant, apparently full grown, and the question was examined in a court of law, whether the first or second husband was the father. It was decided, though I do not perceive on what grounds, that the second husband was the father. The first husband might have been in good health the day of his marriage, though destroyed by plague the day after, and there is no reason to doubt but he might be the father. Suppose a man in excellent health and vigour cohabited with his wife, who was also healthy, on a certain day, on which he was murdered, drowned, or died suddenly by apoplexy, or any other cause, no physiologist could doubt but impregnation might follow; and if she were delivered at the expiration of two hundred and seventy-three days from the time of his death, which period is seven days less than the usual duration of pregnancy, but that he might be, and if the wife was a virtuous woman, was really and truly the father of her infant. Before deciding on such cases, the age, strength, temperament, and fecundity of both parties ought to be most carefully and rigidly examined, according to strict and modern physiology.

In some cases a woman, convicted of felony, and ordered for execution, pleads pregnancy in stay of execution. The English law is, that the woman must be *quick* with child, or feel the infant move in her womb, and in such case the punishment is deferred until after delivery, as an innocent infant should not be sacrificed for the crime of a guilty mother. But if the woman become pregnant after delivery, she will be executed before the infant moves. This is a most unnatural and erroneous law, for the infant or fœtus is alive from the instant of conception. In France a woman is not put on trial for her life until it is ascertained that she is not pregnant. Our law is based on the common law, which was the result of a foolish adoption of ancient and erroneous physiology. It is an error in law to make a distinction between animate and inanimate fœtuses; there is no such thing as the latter in natural pregnancy, because the embryo is alive from the instant of conception, and does not become a living being instead of a lifeless mass when quickening is first perceived. From the preceding facts we must conclude, that a pregnant woman, who is ordered for execution, ought not to suffer the extreme penalty of the law before quickening; and that the crime of abortion is as great before as after quickening, though Lord Landsdowne's amendment of Lord Ellenborough's Act, holds the contrary conclusion, and awards a different punishment for those who produce criminal abortion before and after quickening.

It has occurred that a woman, who was examined by several midwives in France in 1655, and declared not to be pregnant, was executed; on dissection, a fœtus between three and four months old, was found in the uterus. Our law is still very defective in confiding such an inquiry to a jury of matrons, who are totally incompetent. Thus they decided, that a woman was not quick with child at the Norwich assizes, 1834, and she was ordered to be executed. But some medical practitioners of that town examined her, and found her five months pregnant. The sentence was suspended until after delivery, when it was commuted to transportation for life on an appeal to her Majesty. It ought to be borne in mind, that pregnancy has been feigned or pretended to gratify the desires of a husband, to entrap a man into marriage, to extort money, to render an assault more aggravated, to deprive the legal heir of his just rights, and to stay execution. In all these cases medical evidence is required to prove or disprove the allegation. It is also to be remembered, that pregnancy is often concealed to avoid disgrace, or with a view of destroying the infant by inducing abortion.

When a woman feigns pregnancy, she often has recourse to artificial means to increase the size of the abdomen, such as napkins, or cushions, so that the abdomen ought to be examined with the hand very carefully. I have detected cases of this description. A woman who wishes to conceal her pregnancy, will lace her stays or apply a bandage very tightly. I remember a remarkable case in point. It was that of a young girl, aged fifteen years, who, accompanied by her mother, applied to me at St. John's Hospital, on the grounds of suppressed menstruation. She had taken abortives the night previously. I found her stays very tightly laced, and, on inquiry, I learned that she had all the usual signs of pregnancy. On making a vaginal examination, I distinctly felt the infant's head, and she confessed the fact. It is now admitted, that pregnancy may happen without the consciousness of the woman, when she is stupified by sedative drugs, or by intoxication, or when she is in a state of syncope, asphyxia, or in a profound sleep.

I knew a woman who was delivered while under the influence of an excessive dose of opium without her consciousness; and, I may add, that my friend, Dr. Uwins, saw this patient afterwards in Cross-street, Hatton Garden. Dr. Montgomery relates the case of a lady who was delivered during sleep; and I was summoned to attend a similar case. Dr. Gooch relates the case of a young woman at an inn, who was summoned to affiliate a child, and who swore positively she did not know the father. This evidence astounded the magistrates, but it was soon very satisfactorily explained. An ostler, belonging to the inn, stepped forward and declared the young woman spoke truly, and that he was the father. He stated, that on his return home at a very late hour at night, he found her in a profound sleep on the hearth-rug, before the fire, and had connexion with her without awaking her. A case exactly similar is related by Dr. Evory Kennedy, on the authority of Dr. Cusack. (Obstetric Medicine, 1834.)

A young woman applied to me for advice, and after due consideration I hinted that she was pregnant. She swore it was impossible, that "she had never known man." I was equally positive that she was pregnant, requested her to take other advice, and to return at the end of a month. She did so, and stated that some practitioners had declared she was not pregnant. The uterus, however, had ascended, and my opinion was unaltered. Her paramour called on me, and stated, that he had induced her to take wine to ebriety, and then had connexion with her. He added, moreover, that there was only the slightest penetration at the moment of emission, as he did not wish that conception should happen. I told him, conception might happen under such circumstances, that the woman was pregnant, and he informed her of his conduct. I attended her during a natural labour.

A case occurred in Italy, of a young and beautiful woman who was supposed to be dead. A friar slept in the house the night of the supposed death, and had connexion with the body. It happened that the woman was in a state of catalepsy or asphyxia, from which she recovered, and in nine months from the connexion was delivered of an infant.

These cases show how necessary it is for medical witnesses to be guided by physical evidence, when giving opinions in doubtful cases of pregnancy.

I may add, in conclusion, that Desgranges, Foderè, Duquesnel, Hamilton, and others, record numerous cases of married women, who had children, who arrived at the full period of pregnancy, without having been aware of their condition.

Every observant obstetrician meets with cases of pregnancy in married women before the time of quickening, though the individuals are unconscious of their condition.

Another question may arise when a widow asserts she is pregnant at the time of the death of her husband. His heirs may be deeply interested in the issue, as regards estates and property. The law has provided a remedy, and orders a writ *de ventre inspiciendo* directed to the sheriff, to appoint twelve women to examine the widow, and state whether she be pregnant or not. If they decide in the affirmative, she is to be kept safely in a certain house, which is to be guarded and visited occasionally by some of the matrons, who are also to be witnesses at her parturition. Such a writ was issued by Sir Francis Willoughby, against his mother-in-law, who was treated as above mentioned, and finally delivered of a daughter.

In a recent case (Nov. 1835.) the Vice Chancellor ordered a physician and midwife to be chosen by plaintiff and defendant to examine the lady from time to time, but that she was not to be confined to any house. The lady was pregnant, and in due time delivered.

A fraud may be committed in feigning pregnancy, when a strange infant is imposed upon the husband, as in the case of the mistress of the Prince of Tuscany, and that mentioned by Dr. Male, where the woman pretended to be delivered, and had a dead infant beside her in bed. On examination, it was found that she had not been recently delivered.

Protracted pregnancy may also be a matter of legal investigation. Of this I shall treat very fully hereafter; but I may now observe, that Aulus Gallus states, the emperor Adrian published an edict in favour of a woman of irreproachable character, who was delivered at eleven months after the death of her husband. The parliament of Paris decided in the same manner in favour of the legitimacy of an infant born in the fourteenth month of pregnancy. Bartholin relates the case of a young woman at Leipsic, who was delivered in the sixteenth month of pregnancy, and the woman was said to have been in confinement.

There is a still more remarkable case stated in the Histoire de l'Academie des Sciences, in which it is gravely reported of an infant born alive, after three years' pregnancy. The cases of Bartholin and that just mentioned, are, in my opinion, totally unworthy of credit.

Cases of extra-uterine gestation have been protracted for twenty or forty years, and in such cases, if the woman was ordered for execution, the sentence of the law could not be carried into effect. Such examples are, however, of very rare occurrence.

For the better understanding of this important subject, it will be necessary to describe the signs of conception and pregnancy, including spurious, extra-uterine, false, pretended, and concealed utero-gestation, superfœtation or second conception, abortion, natural and provoked, duration of pregnancy, recent delivery, survivorship of parent or offspring, viability of infant monsters; and lastly, prolicide, fœticide, infanticide.

Signs of ordinary pregnancy.—The signs of pregnancy may be divided into rational and sensible. The first result from the influence of the uterus on the moral and physical states of the woman, and these are disorders and derangements of the organic functions or vital processes. The second result from the developement of the uterus, and the presence of the fœtus in that organ.

Rational signs.—It is a vulgar opinion, and was professed by Hippocrates and Galen, that a fecundating copulation is accompanied by more vivid enjoyment than an ordinary coition. This is not always the case. The following signs usually occur after conception:—there is a change in the moral and intellectual faculties, in the temperament and constitution of the female; the eyes lose their vivacity, their brilliancy, and become languid; the eyelids are surrounded by a blackish, livid or leaden-coloured circle; the nose is elongated, the mouth is smaller, the countenance is changed, the voice is stronger, the neck fuller, transpiration more odorous, the character more decided, and the passions more violent; the menses are generally suppressed, the mammæ are firmer, more sensitive and more developed, sometimes secreting a thin, whitish serous fluid; the nipple is more prominent, the areola is enlarged, and of a browner colour.* Immediately after conception, the female experiences strange sensations which are new to her, often unaccustomed sadness, a tendency to fainting or complete syncope, horripilations, colic, and a vermicular motion in the uterus, which extends to the abdomen, borborygmi, or rumbling in the bowels, and rigors, or shiverings. There is sometimes anaphrodisia, or loss of venereal desire, sometimes increased salacity. The pulse becomes more frequent, weaker, or fuller and softer, the temperature is increased, the transpiration is more abundant, the urine is more copious, turbid and cloudy, the secretions are increased, there is often ptyalism, the hepatic functions are disturbed, and there are spots and ephiledes on the face and skin. The taste and digestion are often depraved, anorexia, nausea, inappetence and vomiting supervene, the woman desires innutritious or disgusting food, such as chalk, cinders, putrescent animal food, vegetables, fruits, acid drinks and vinegar, &c. This inappetence and depraved taste are followed in a few months by a keen, voracious appetite, but towards the last month of pregnancy, the digestive functions may again become deranged, as the stomach is at this time so compressed by the gravid uterus, that it often can contain but a small quantity of aliment.

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* Dr. Montgomery is convinced that this symptom may be relied on It is not, however, invariably present, and I have often seen women of fair complexion without it, whose pregnancy could not be doubted.

Every one of the usual signs of pregnancy and of labour may be present in women who carry moles or false conceptions, or who have hydatids, polypous tumours, hysteria, or tympanites. I have met with repeated examples of each of these cases. I have also attended women from the age of forty to fifty years, who had borne offspring, and who felt convinced they were pregnant, from what they supposed to be the motion of the infant; but they were mistaken. This is a common mistake made by intelligent married women, who are nervous and excitable; and also in cases of old maids, who have endeavoured to become mothers. The cause of the supposed motion is spasm of the intestines ; and it is particularly troublesome near the right and left hips, and in the lower parts of the abdomen.

The moral state, or mental condition, what is termed moral by the French, is subject to numerous changes; thus some women, naturally gay and amiable, become sad, melancholy, and unsociable, and vice versâ. Many diseases appear, others disappear, as hysteria, chlorosis, chorea, epilepsy, &c. The whole of these signs are seldom observed in all cases, and all are doubtful and uncertain. If all are present, they afford strong proof of pregnancy, but never that positive certainty which enables us to give decisive evidence before magistrates or judges.

Sensible signs.—These signs consist in augmentation of the abdomen, in the active and passive movements of the fœtus, in the perception of the fœtal and placental pulsations by means of auscultation, in the evidence afforded by the *touch* or vaginal examination, or *ballottement*, as to the state of the os and cervix uteri in the different stages of uterine gestation, and the developement of the uterus. The most certain of these signs are the touch or ballottement, and auscultation. The touch consists in the introduction of the finger into the vagina, and the application of the other hand above the pubis, when the uterus will be felt enlarged, and if gentle percussion be applied above the pubis, the fœtus will be made to strike the finger, which cannot happen unless there be a fœtus and a fluid in the uterus. This sign, however, is not always conclusive, for it has existed in extra-uterine fœtation. It can only exist about the fifth or sixth month, and has led to mistake even at the approach of parturition. (Capuron Malad. des Fem. p. 72.) Auscultation is valuable when the fœtus is dead, and also in extra-uterine fœtation. The changes of the neck and body of the womb enable us to distinguish pregnancy from hydropsy, tympanites, hydrometra, hydatids, moles, polypi, &c.

I was once summoned in the middle of the night to a neighbouring county, to perform the Cæsarian operation on a young lady, aged twenty-one years, well-formed, but very hysterical, who was said to have been sixty hours in labour of her first infant. I found the cervix uteri in the virgin state, the uterus of the normal size, and the real cause of the abdominal tumour was tympanites. I have now notes of twelve cases of supposed labour, in which the women were not pregnant; and some of these are of recent date. During the present year, 1835, I was requested to visit one of them, and the woman became a patient at the Western Dispensary, Westminster, where she was seen by numerous students.

The spontaneous motions of the fœtus may take place from the second to the fifth month of pregnancy, but some women never perceive them during the whole period of gestation, others imagine them present when there is no conception. Nervous and hysterical women very frequently make the last mistake. The spontaneous motions of the fœtus and quickening are not infallible proofs of pregnancy. Auscultation has been called into action to enable us to decide this point. M. Le Jumeau de Kergaradec has applied the ear and the stethoscope to the abdomen, and discovered the double motion of the fœtal heart, and also the placental murmur, which was synchronous with the maternal pulse. It is to be recollected, that the first must change with the position of the infant, and consequently may be heard in different parts of the abdomen, at different examinations. Dr. Kennedy, of the Dublin Lying-in Hospital, has written in favour of auscultation, in the Dublin Hospital Reports, vol. v. 1830, and also in an original work. This gentleman has since written a treatise on the subject, in which he relates numerous cases of concealed pregnancy, about one hundred in number, which he detected by auscultation.* The pulsations of the fœtal heart vary from a hundred and twenty to a hundred and sixty in a minute, whilst that of the placenta is synchronous with that in the wrist of the mother. It is often difficult to detect the fœtal and placental pulsations, as these will be found in different positions according to the situation of the fœtus, and insertion of the placenta.

The ascent of the uterus will often enable us to detect the period of pregnancy; and this avails most after the first three months; and more especially in thin spare women, who have little or no fat on the front of the abdomen. A vaginal examination may be made when the patient is on her left side, back, or even in the erect position. The method of making this examination is described in all works on obstetricy. Johanna Southcote and others have feigned pregnancy, and deceived medical practitioners.

M. Velpeau has tried auscultation in many cases in vain. Traitè Elementaire des Accouch. 1835. Dr. Fergusson, of Dublin, thinks it an unequivocal proof. Dub. Med. Trans. vol.

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* I was requested to see a girl of fifteen by my friend, Mr. Hughes, of Holborn. I suggested pregnancy as the cause of her suffering, detected the placental murmur with the stethoscope, made a vaginal examination, and distinctly felt the infant's head. She stoutly denied the accuracy of my opinion; but confessed, a few days afterwards, that I was right. Her step-father, or mother's husband, was her seducer.

i. 1830. From the preceding considerations, the following conclusions may be drawn:—

1. That the fœtal and placental pulsations, when discovered by auscultation, are positive proofs of pregnancy.

2. That in all cases before the third month, the diagnosis is extremely uncertain.

3. That during the five succeeding months, better evidence is afforded by the progress of uterine developement.

4. That there is no infallible sign of pregnancy, except that afforded by auscultation, and by feeling the fœtus.

Previous to the application of auscultation, it was held by the following authorities, that there was no infallible sign of pregnancy in the early months:—Hamilton, Burns, Mahon, Foderè, Capuron, Farr, Male, Beck, Smith; Edinburgh Med. & Surg. Journ. 1823, vol. 19. Med. Chir. Rev. 1824. Med. & Phys. Journ. 1825. For exact references, see my work on *Obstetricy.*

Dr. Beck concludes, that it is impossible to decide on pregnancy before the sixth month, but this opinion is refuted by subsequent experience. The placental murmur has been heard so early as the third, and auscultation enable us to form an opinion, even at this early period of pregnancy.

We may derive advantage from attending to the signs of the different epochs of pregnancy, which are afforded by the developement of the uterus. During the two first months the diagnosis is extremely obscure, and cannot be attempted with any degree of certainty. At the end of the third month the fundus uteri is on a level with the superior margin of the pubis; at the end of the fourth month, the uterus is in the hypogastrium, the spontaneous motions of the fœtus, are generally perceived by the mother, as well as by auscultation; and the diagnostic termed *ballottement* is now afforded to the obstetrician. At the end of the fifth month, the uterus touches the inferior boundary of the umbilical region, and the cervix uteri is elevated in the vagina. At the end of the sixth month, the uterus is felt at the umbilicus, and as this part projects, the motion of the fœtus may sometimes be felt by the practitioner at the third month of pregnancy.

Morgagni proposed the following plan for discovering the motions of the fœtus. In warm weather, let the hand be immersed in cold water, and suddenly applied to the naked abdomen of the woman; and in cold weather let the hand be immersed in warm water, and applied to the same part, when the motion of the infant may be distinctly felt. I have often acted on these suggestions with success, but often failed. It is also to be remarked, that the cervix uteri begins to diminish in length at this period, and its progressive changes are well delineated by Gooch, Meygrier, and in my Lectures on Obstetricy in my own Journal, 1836.

At the end of the seventh month, the uterus approaches the inferior margin of the epigastric region, and is near the stomach. The abdomen often affords a dull sense of fluctuation, which differs from that of ascites; percussion affords a dull sound, which is distinguishable from tympanites or meteorism. At the end of the eighth month the uterus is in the epigastrium, the cervix nearly developed, or obliterated, directed towards the sacral concavity, round, gaping, and thickened; and the limbs of the fœtus may now be often felt through the abdomen. At the end of the ninth month the uterus becomes depressed under the epigastrium, the orifice of the uterus is more easily felt rounded, and often open, and the head of the infant can be often recognized by a vaginal examination. In women who have had former pregnancies, the uterus does not ascend so high as in first cases, as the abdominal muscles have been relaxed, and it therefore inclines more forward. In forming a diagnosis in cases of doubtful pregnancy, we should not forget to bear in mind the appearance of the abdomen in ovarian dropsy, in which a careful history of the symptoms will enable us to arrive at a correct conclusion. I have frequently known young women affected with this disease, to have all the appearances of pregnancy; the general health suffers little, and sometimes not at all; the catamenia is regular; the usual symptoms of pregnancy are absent; and, upon close inquiry, it will be found, that pain commenced in the ovary, that the tumour was first in one side, and then gradually occupied both. In this, as in all other cases, a knowledge of disease alone will enable us to distinguish correctly. This knowledge is to be obtained by reference to the best systems of obstetricy, and by actual experience. It would far exceed the limits by which I am circumscribed, were I to describe the various diseases which may be mistaken for pregnancy. I must refer the reader to the standard works upon obstetricy. After a luminous description of the diagnosis of pregnancy, and all its difficulties, M. Velpeau concludes, "but it is dangerous to forget that there exist causes without number (of deception), and that before the tribunals one ought never to give a decisive judgment, without having previously acquired a mathematical certainty of the fact upon which he pronounces." This is the received opinion of the present time.

Dr. J. C. Fergusson has published five cases of concealed pregnancy in the Dub. Med. Trans. 1830, in all of which he was enabled to discover the pulsations of the fœtal heart and bruit of the placenta. He says, "I conceive it to be sufficiently established, that either a placenta or fœtal heart being heard, constitutes infallible evidence of pregnancy; evidence upon which a medical man may, if required, conscientiously and positively swear to the fact, which I believe all admit, and our legal records show, could not be done under ordinary circumstances. . . . . The absence of these phenomena amounts, if not to positive, at least to presumptive proof of the contrary." I cannot agree with these conclusions, because many practitioners may not be sufficiently dexterous with the stethoscope to detect the pulsations of either the placenta or heart; and further evidence is required to warrant the latter conclusion. It is very manifest, however, that auscultation affords the best means of diagnosis in doubtful cases of utero-gestation. Foderè mentions the case of a nun who denied she was in labour until she was silenced by the cries of the infant. My friend, Dr. Sanders, of Edinburgh, met with similar cases; and I have heard of two.

In cases of extra-uterine fœtation, should the Cæsarian operation, or rather gastro-hysterotomy be performed, the infant cannot inherit property according to the laws of this country. (Blackstone.) This is the only medico-legal point connected with the subject. A point of much importance to be decided is, whether twins be the result of one coition, or of superfœtation. The decision will affect primogeniture. The question has not been noticed by any writer on forensic medicine except myself.

Superfœtation.—Physiologists are at issue upon the question of superfœtation, or that it is possible for a pregnant woman to conceive a second time. According to Aristotle, a female was delivered of twelve infants, and another of twins, one of which resembled her husband, the other her lover. Some writers maintain, that superfœtation is possible during the two first months of pregnancy; the majority hold it possible during the first few days after conception, before the uterine tubes are closed by the decidua. This is the received opinion, though cases are on record which justified Zacchias and other jurists, in concluding that superfœtation might occur until the sixtieth day, or even later. It is by no means uncommon to see a full grown infant born, and another of the second, third, fourth, fifth, or sixth month expelled immediately after. I need not cite authorities upon this point, as obstetric works abound with examples. Nevertheless a few examples may be given. Dr. Maton published an account of a woman who was delivered of a full grown infant, and in three calendar months afterwards of another apparently at the full time. Trans. Coll. Phys. vol. iv. The illustrious Harvey describes a case exactly similar in his work—*De Partu Exercitationes, &c.* A woman was delivered at Strasburg, the 30th of April, 1748, at ten o'clock in the morning; in a month afterwards M. Leriche discovered a second fœtus, and on the 16th of September, at five o'clock in the morning, the woman was delivered of a healthy full-grown infant. (*Manuel Complet de Med. Leg. par Briand.*) Desgranges, of Lyons, attests a case in point: the woman was delivered at the full time, the 20th January, 1780; in three weeks afterwards she felt the motions of an infant, and her husband had no intercourse with her for twenty-four days after delivery. On the 6th of July, (five months and sixteen days subsequent to delivery) she brought forth a second daughter, perfect and healthful. On the 19th of January, 1782, she presented herself, and both infants, before the notaries at Lyons to authenticate the fact. Foderè, vol. 1. These cases prove the possibility of superfœtation, four, five, and six months after conception. This may be possible, as menstruation has occurred during pregnancy. (Mauriceau, Deventer, Heberden, Francis, Hossack, Dewees, Capuron, Mayo, &c. &c.) Buffon related a case of a woman in South Carolina, who brought forth a white and a black infant, and on inquiry, it was discovered that a negro had entered her apartment after the departure of her husband, and threatened to murder her unless she complied with his wishes. Dr. Mosely relates a similar case. A negress, of Guadaloupe, brought forth a black and mulatto, having had intercourse with a white and black man. She said she knew the cause of it, which was, that a white man came to her bed one morning, after her husband had immediately left her, and before she was up, and she suffered his embraces. Another negress who had admitted a white and a black man in immediate succession, also brought forth a black and a white infant. There is another example related in the Jamaica Physical Journal, 1835—one of the infants was black, and the other a mulatto. Another negress produced a white, black, and a piebald infant. A domestic of Count Montgomery produced a white and black child at one birth. (Velpeau.) Gardien relates a similar case on the authority of M. Valentin. A mare has produced a foal and a mule, she having been impregnated by a horse, and in five days afterwards by an ass. In treating of this subject, in my work on Obstetricy, 1831, I made the following remarks:—

" Another argument, which I have never heard, occurs to me from analogy, which deserves mention; namely, that each dog will produce a distinct puppy—this no one can deny; for the offspring will resemble the different males that fecundate the bitch in succession. If a number of healthy vigorous men were to have intercourse in succession with a healthful woman, immediately after the first conception, I think it probable and possible, that superfœtation would happen. Magendie is of the same opinion. Medical men must not forget, that women have had three, four, and five children at one birth: and various cases of infants of different sizes being expelled in succession, are recorded in our own periodicals. Medical and Physical Journal, v. 22, p. 47.—It is admitted by the majority of modern physiologists, that while the venereal excitement continues in mammiferous animals, superfœtation may occur with one or more vigorous males; but when the orgasm ceases, no further impregnation occurs. It is also most probable, that super-conception would be more likely to take place with different individuals than with one person, except he was in good health, had been very continent, and vigorous—states which are most likely to belong to different persons, v. 24, p. 232. Medico-Chirurgical Transactions, v. 9. Philosophical Transactions, v. 60.

"One of the Pennsylvania newspapers in 1827, recorded the case of an Irish lady, who in eighteen months had at three births twelve living children, all born prematurely. She and her husband were heathful fresh looking persons, and only two years married. This case is not recorded as yet, in any of the American Medical Journals; but if it prove to be authentic, it will be one of the most extraordinary instances of fecundity recorded in any country." Cases of twins, triplets, quadruple, and quintuple births, are of very rare occurrence; but of these more particularly hereafter. Dr. Golding, of this city, delivered a woman of four infants during the year 1829. It remains to be proved whether so many infants were generated at the same or at different times.

I am happy to add, that Professor Velpeau, of Paris, is of the former opinion. He says, "In according all possible authenticity to these observations regarding their exactitude as demonstrated, the idea which prevails in physiology on generation, permits an easy explanation. Two ovules can be fecundated one after the other, in a woman who accords her favours to two or more men, the same day, or in two or three days after conception, that is to say, to the moment when the excitation of the first coition causes the effusion of coagulable lymph into the uterus, to form the caducous membrane (decidua.) These ovules may not descend through the uterine tube at the same time, and may be differently developed. But I think superfœtation impossible after the decidua is formed." *op. cit.* The closure of the os uteri after conception, does not take place for some days, weeks, or months (Dewees); but if the male semen be absorbed from the vaginal surface, and conveyed directly to the ovary, as in the elephant, cow, sow, (Gertner) such closure is no objection. Twins have often but one amnois and placenta, they may, however, have two, but in cases of superfœtation, each infant has its own membranes and placenta. I once attended a female who was delivered of one infant on Monday, the parturient action ceased, and on the following Thursday, the membranes presented, and she was delivered of a second infant. There was no hæmorrhage, and the placentæ were united. I have often seen a similar union of the placentæ. Whether we admit superfœtation, or that twins are generated by one coition, the medical practitioner ought to notice which was born first, male or female, when the disposal of property or title depends upon the decision. The question is, which was born first, not which was conceived first. It was once supposed that the infant born first must have been begotten last; but every scientific medical practitioner, will at once perceive the invalidity of the opinion. Admitting superfœtation to be possible, and it cannot be denied in the early weeks of gestation, we cannot decide paternity, unless, perhaps, when one infant is black or brown, and the other white; but if both males were of the same colour, the decision might be difficult, unless some physical mark on the infant, a parental transmission, existed. Foderè concludes, that superfœtation may occur without injury to the fœtus first formed, between the fourth and sixth month. Hippocrates limited the period to seven days, Le Glosse to forty, and Zacchias to sixty.

The following conclusions are admitted in cases of pregnancy:—

1. There are no signs by which pregnancy can be determined before the third month.
2. At this period it may be ascertained by auscultation, ballottement, or vaginal examination.
3. Pregnancy may, however, evade detection at this period, unless it be ascertained by auscultation.
4. All the physical and moral evidence which bears upon a given case ought to be deliberately considered before arriving at a positive conclusion.
5. The preceding facts are to be duly estimated.

It need scarcely be stated, for it is now decided, that a woman may become pregnant, and be ignorant of it until the time of labour, (Foderè, and Sanders of Edinburgh.) This may occur in cases of idiots (Desgranges), when the female is in a state of stupor, either from inebriation, narcotics, coma, syncope, or during sleep. (Foderè, Orfila, Beck, Hebenstreit, Gooch, Cussack, and others.

Duration of Pregnancy.—Legitimacy.—Hippocrates, Aristotle,* Galen, Pliny, Avicenna, Mauriceau, Riolan, La Motte, Hoffman, Schenk, Haller, Bertin, Lieutaud, Petit, Levret, Louis, Astruc, &c., maintained that pregnancy usually terminates at the end of the ninth calendar month, or fortieth week, but might be protracted to the tenth, eleventh, twelfth, and some of them said to the fifteenth.

It is also decided by a preponderating majority of the profession, in all countries, that the term of utero-gestation is not uniform; in other words, not invariably limited to nine months. This position is strongly attested by the analogy afforded by the inferior animals; for it appears by the extensive observations of M. Teissier, on the gestation of heifers, mares, sheep, swine, and rabbits, that all these animals exceed their usual periods of delivery. (Trans. de l'Acad. des Sc. Paris, 1817.) Further evidence is afforded by the vegetable kingdom, in which we observe in the same field, on the same tree, shrub, &c. that different parts of vegetables arrive at maturity with more or less celerity. Petit informs us that many faculties of medicine, forty-seven celebrated authors, and twenty-three physicians and surgeons, concluded pregnancy might be protracted to the eleventh or twelfth month. He cites a case on the authority of Schlegel, in which pregnancy was protracted to the thirteenth month; the infant was admitted to be legitimate, on account of the virtue and probity of the mother, which induced her shopman to marry her, and she bore two children by him, each at thirteen months. Dr. Thomson doubts the probability of this, without assigning any satisfactory grounds. Tracy, a naval physician, relates a case at the fourteenth month. Dulignac, a French surgeon, positively asserts that his own wife quickened at four months and a half, and on two occasions she went to the thirteenth month and a-half, and on the third, to the eleventh month. Desormeaux relates a case of a mother who had three children, who was maniacal, and whose physician, after all means had failed, recommended pregnancy. Her husband had intercourse with her once in three months, of which he kept an exact account. She was closely watched by his domestics, and she was previously extremely religious and moral; she was delivered at nine months and a-half. (Velpeau.) The last author attests a case which went 310 days; and Foderè two of ten months and a-half.

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* The popular work, called 'Aristotle's Master-Piece,' which is the text-book of midwives and women, is spurious; it was written by one Salmon, an empiric, and abounds with absurdities and errors.

The medical evidence in the Gardiner Peerage cause, tried before the House of Lords, in 1825 and 1826, throws no light upon the subject. It is right, however, to observe, that the witnesses were obliged to speak from their personal experience only, to lose all sight of physiological science, and of the numerous opinions of ancient and modern writers, and that "one and all have shewn an extraordinary ignorance on the principles of evidence, will be conceded by every one who examines carefully their testimony. But it may also be doubted whether the question admits of better evidence than has been already proved, or at least arrived at, by them and their professional predecessors." (Dr. Duncan, Edin. Med. and Surg. Journ. 1827, v. xxvii.)

The following is the substance of the medical evidence in the Gardiner Peerage cause; and it was elicited to determine who was the heir, and entitled to the estates and family honours of Lord Gardiner:

"Lord Gardiner had parted from his wife, by sailing for the West Indies, on the 30th of January 1802, and he did not return until the 11th of July. His wife was delivered of a son on the 8th of December, exactly 311 days after they had parted; the usual period of pregnancy being 280 days. If the infant were begotten after the return of the reputed father, then it was one of five months. The object of the trial was to prove the legitimacy of this infant. Lady Gardiner had cohabited with a Mr. Jadis very soon after the departure of her husband, and as the infant she bore after his return must have been carried in the womb longer than nine months, the reputed father who had obtained a divorce, disputed its legitimacy, and succeeded in disproving it.

"The majority of the medical witnesses, examined in the Gardiner Peerage cause, were in favour of protracted pregnancy, as Drs. Granville, Conquest, Blundell, Hopkins, Hamilton, of Edinburgh, and Power. Dr. Granville proved that his own wife went to 306 days, even admitting pregnancy to have occurred the day before the interruption of menstruation; and 318 days, if from the middle of the last and expected period. Dr. A. T. Thomson, who attended her, was of the same opinion, that the infant was ten months old at birth. Dr. Granville knew other cases of 285, 290, and 300, and one doubtful at 315 days. Dr. Conquest knew two or three cases at the tenth month.

One of his patients was a most sensible woman, who had been the mother of six children, and had engaged him and the nurse to attend her at a certain time; went five weeks after, and four with the next. She had other children afterwards, at the ninth month. Dr. Merriman observed cases at 280, 285, 303, and 309 days, and thought the Gardiner case possible; Drs. Blundell and Hopkins, at 285; Dr. Power, eleven months; Dr. Hamilton, ten calendar months. Dr. Collins, of Liverpool, has since published a case of eleven months, which occurred two years before. (1825) Edin. Med. and Surg. Journ. April, 1826, v. 25. This is worthy of serious perusal. I know a delicate woman, who menstruated the last week in February, 1826, quickened in the following July, and engaged me to attend on her in November. She had spurious pains in November, December, and January, 1827, and was delivered on the 28th of February, 1827; nearly twelve months from her previous menstruation. I had most serious business from home in November, but by her entreaties deferred my journey in that, and even the next month. I then daily expected her delivery: but she went two months later. The infant was a girl, and of the ordinary size, though she and all her friends thought she should die undelivered from her protracted pregnancy; yet her labour was only of two hours' duration, and perfectly natural. I shall ever have cause to remember this case, as I nearly lost some considerable property by deferring my journey to attend upon it. It was a first pregnancy. This is, I believe, the longest instance of protracted gestation, which has hitherto been recorded in the annals of British medicine. Another argument in favour of protracted pregnancy is, that children often grow more in one year than in seven years before, which would prove that the developement is not always comparatively progressive in the same in the womb. The following obstetricians were produced against the doctrine of protracted pregnancy, on the Gardiner Peerage cause. Sir Charles Clarke, who in twenty cases, never knew one to exceed the term of nine months. Most of his patients were illicitly pregnant, and very little, if any, reliance ought to be placed on their evidence, as to paternity. His evidence does not controvert the opposite conclusion on the question. Dr. Blegborough had practised extensively for thirty-four years, and never knew pregnancy exceed the ninth month. Mr. Pennington contended for forty weeks and three or four days; and Drs. D. Davis and Gooch were of the same opinion. It is a strange but positive fact, that the gentlemen who came forward to prove pregnancy to be immutable and definite at a certain period, all admitted it might exceed nine months, by four or six days; hence the justice of the late Dr. Duncan's critical sneer at their evidence. In the case under consideration, the claimant Jadis, otherwise Gardiner, was born eleven months after his reputed father went abroad; and his mother had cohabited with Jadis, the future husband, soon after Lord Gardiner had been absent. On his lordship's immediate return, he obtained a divorce against her, on discovering the adultery, and married again; and the offspring of the second marriage, on claiming his father's title, was opposed by Jadis, the son of Lady Gardiner, who, at the adult age, took the name of his reputed father. Under these circumstances, and contrary to the medical evidence of the majority of the obstetricians, the House of Lords decided against him. The evidence in favour of the legitimacy of Jadis was founded on too few cases, personally observed, to warrant a perfect confidence in it, or to settle the question of protracted pregnancy. Dr. Duncan, who ably criticised the whole of the evidence, justly concluded, by stating, that there was not a single new fact advanced by the medical men, in elucidation of the subject at issue; and he "wonders at the want of knowledge of the witnesses, who appeared to be unacquainted with the nature of legal evidence; and neither their evidence nor that of the other side, was sufficiently accurate, in not being deduced from physiological science; which, however, in the present state of medical knowledge on the question, could not perhaps be more accurate. On the whole, the weight of the testimony was in favour of the advocates of protracted pregnancy; but the mother having cohabited with another, proved her incontinence; which fact influenced the House of Lords against the legitimacy. After all, the subject remains as obscure as before, and will require much more scientific medical evidence to decide it one way or the other."

Dr. Dewees relates the case of a lady, whose husband was absent on account of embarrassment of his affairs. He returned one night clandestinely, had intercourse with his wife, whose menstrual period was expected within a week and occurred, yet she was delivered in nine months and thirteen days from the coition. The question of protracted gestation, and more especially the Gardiner Peerage case, was since discussed at the Westminster Medical Society, in Dec. 1829, when Dr. Granville adduced the following authors in favour of the affirmative side of the question:—Among the ancients, Hostius (Horstius), Sylvius, Harvey, Mauriceau, Levret, Lieutaud, Heister, Delignac, La Cloture, Benedictus, Petit, Smellie, and W. Hunter. Among the moderns, are Osiander, Foderè, Schoreider, Lentosseit, Spregnel, Adelon, Bardt, Capuron, Orfila, Burns, Desormeaux, Dewees, Hamilton of Edinburgh, and Merriman. I have already mentioned many others. On the occasion in question, Mr. Chinnock related a case of a lady who menstruated October 14th, and had intercourse with her husband on the 29th. She was delivered on the 20th of February, a space of 298 days after the connection, but labour commenced three days previously. I also mentioned the case already narrated; and Dr. Ley and Mr. North took the same side of the question. The whole of the society were of the same opinion, with one or two exceptions. (*Lond. Med. and Surg. Journ.* 1830, v. 4. *Med. Gaz.* 1830, vol. v.) There is no doubt, in my opinion, but the weight of medical authority, in ancient and modern times, is in favour of protracted pregnancy; but in the present state of science it is impossible to assign the exact limit. The law of this country assigns no limit to utero-gestation; the law of France limits it to three hundred days, or ten months, and allows legitimacy to be contested after this period. (Velpeau.)

CHAPTER III.

ABORTION.

Abortion is justly considered a heinous crime—as it is the murder of the fœtus in the womb, or in other words, of a human being. The law looks upon it in this light, after quickening has taken place, when it is supposed the fœtus is alive. This is an error, as the fœtus is alive from the moment of conception, as will appear by the facts in the next chapter.

It is enacted by the 9 Geo. IV. c. 31. that using any poison, noxious thing, or instrument, to procure the miscarriage of any woman quick with child, or counselling or aiding therein, is felony, punishable with death; and the same offence as to a woman not quick with child, or proved to be such is felony, punishable by transportation for not exceeding fourteen, and not less than seven years; or imprisonment with or without hard labour, not exceeding three years; and public whipping, once, twice, or thrice, may be superadded.

It is necessary for every young medical practitioner to be aware of this law, as large bribes are frequently offered to apprentices and assistants to give some medicine to induce abortion, which would subject such person to the penalties above mentioned. If there had been no such law enacted, every man of proper moral feeling would shudder at the horrid proposal of his committing murder, or rather a double murder, for it will appear, by subsequent facts, that the woman and fœtus are generally destroyed in such cases.

In judicial investigations relative to abortion, medical jurists are required to decide the following questions:—1. Has there been abortion produced? 2. Is abortion natural or provoked? 3. Has the fœtus quickened?

Signs of abortion.—To determine whether abortion has taken place, we must always examine the product of abortion, and also the woman who is said to have aborted. If we do not see the substance expelled, we cannot give a satisfactory, much less a decisive opinion.

Examination of the embryo or fœtus.—During the first two months of utero-gestation, we must be extremely cautious and take care not to confound the fœtus with a mole or false conception, or with a sanguineous concretion or false mole. At this period, the embryo is enveloped in a capsule formed by two membranes (the chorion and the amnois), united to a spongy mass (the placenta), more voluminous than itself. The first of these membranes is torn, and allows the second to escape in the form of a membraneous sac, to which is attached a clot of blood. On opening this sac, a quantity of fluid escapes, and the embryo will be found in an organized condition. It is a gross mistake in many works on obstetricy, in which it is stated, that the fœtus cannot be recognized at this period. I have preparations which show it perfectly formed at two months. There is also an illustration of the embryo at the twenty-first day, in an organized form, in the excellent plates of Meygrier and Velpeau, &c. We seldom see the substance expelled in early abortions, as it is generally destroyed by the female attendants; and every obstetrician must have been embarrassed by this circumstance, and must have seen cases of supposed abortion, in which the expelled substance was a clot of blood. Hence the necessity of washing such substance, when any doubt exists, in order to determine whether the substance be blood, a mole, or a real conception. We should also remember the frequency of catamenial obstruction for two or three months, and how often women suppose themselves pregnant when they are not so. In such cases, the want of coagulation in the menstrual fluid, proves it not to be blood. In the cases before us it is absolutely necessary to know the appearances of the fœtus at the different periods of gestation. The embryo is visible at the fifteenth day (Meckel), and the ovum is six or eight lines in diameter. It is piriform, elongated, curved, round, enlarged at one extremity, which is the head, and attached to the membrane at the other extremity, having a white cord, which is the spinal marrow. (Velpeau.) Towards the end of the *first* month, the extremities begin to appear in the form of round tubercles, and the umbilical cord is seen attached to the intestine; the liver is large and fills the abdomen. In the course of the *second* month, the head is equal in size to nearly half the body; the eyes are seen as two black spots; the nose, nostrils, and the ears are apparent; the arms and legs begin to appear; the toes and fingers are distinctly observable; there are many points of ossification in the frontal and maxillary bones, the clavicles, ribs, and os ilium. The rest of the osseous system is in a state of cartilage. The penis and clitoris project, but the sex may be determined. The embryo is little less than two inches long, and weighs nearly an ounce. At three months, the fœtus is about four inches long, and weighs nearly three ounces. It is impossible to mistake it at this period, and therefore it is unnecessary to describe its developement any farther.

Examination of the Woman.—It is difficult, and often impossible to conclude, in the first three months of pregnancy, that abortion has or has not occurred. The embryo and its appendages are but slightly attached to the womb at this period, and its existence cannot be invariably determined, even by auscultation. Again, if an embryo is expelled at the end of the first or second month of pregnancy, the vessels of the uterus connected with it and the placenta are so small, that they will readily contract, and not allow of any hæmorrhage. It has happened that abortion has occurred at this period, and in an hour afterwards it was impossible to prove it by physical evidence. It is considered, that the examination of the vagina or uterus, after abortions, before the eighth week of pregnancy, does not afford positive evidence.* The ablution of the genital fissure, or the injection of water into the vagina, would remove all traces of blood. After the third month, the external orifice of the genital fissure, and the os uteri, will be more or less dilated; there will be sanguineous or lochial discharge for one or several days, and the physical signs are conclusive. If abortion occurs from this period to the seventh month, the physical signs are conclusive, if detected during the first five days after disease.

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* Marc. Dict. de Med. Montgomery, Cyclopædia of Practical Medicine. Art. Pregnancy.

The law of this empire is extremely defective on abortion, for it abounds with the greatest absurdities. Its intention is humane and excellent, but it is based upon erroneous physiological principles. It enacts, for instance, that the fœtus is not animated until after quickening, that is, until half the period of utero-gestation has elapsed, though the fœtus is alive from the very moment of conception. I have described its developement before the period of *quickening*, which I need scarcely observe, could not happen if it were inanimate.

Again, a jury of matrons is to decide whether a woman is pregnant or has quickened, questions which the whole faculty of physic, in every part of the world, could not determine in the early months of pregnancy. It would be as wise to appoint a jury of infants to determine these questions. The law also enacts it felony to procure abortion before quickening, and subjects the person who does so, by any means, or even advises it, to transportation for seven or fourteen years; and to death, if after quickening. Every man must applaud this philanthropic legislation; but it sometimes places the medical practitioner in a most dangerous position. Thus in thousands of acute diseases, in which life is in the greatest danger, treatment must be employed which may produce abortion; and is the practitioner to allow his patient to die without the benefit which his art affords? In some cases of uterine hæmorrhage, the life of the female can only be saved by extraction of the infant. But this is producing abortion in the eye of the law. Again, if the woman is so deformed that a full-grown infant cannot be born at the full time, that is, at the termination of the ordinary period of utero-gestation, without a most dangerous operation, is the medical practitioner to allow the female to be placed in this predicament, when he can save her life, and that of her infant, by inducing premature delivery? If the infant arrives at the full term of utero-gestation, it must be destroyed by nature or by art; and by the latter to save the life of the mother. As the statutes now stand this is felony; but a modern legal writer observes, " it may be presumed the operator, in such cases, only commits *justifiable* homicide, and not the crime of abortion." (Cabinet Lawyer.) Surely the medical practitioner can be influenced by no improper motive, in endeavouring to save the lives of the parent and offspring. But to resume the medical part of the subject. We should examine the woman to ascertain whether abortion has really happened. It is impossible to determine this point during the first two months of pregnancy, as the fœtus is too small to leave any trace of its passage. When it occurs from this period to the last months of gestation, the usual signs of delivery will be present, which will be described hereafter. The expulsion of moles, hydatids, or other morbid growths, should not be overlooked, and should be carefully examined. The phenomena presented by the abdomen and external genitals, can only be valuable in proof of abortion, when conjoined with the following circumstances:—1. When there is a certainty of pregnancy, and a comparison made between the developement of the fœtus and the period of gestation. 2. When the pregnancy is so far advanced that the changes in the os and cervix uteri are appreciable. 3. When examination is made, immediately after the abortion has taken place.

The practitioner should bear in mind the immense number of accidental causes which produce abortion; and therefore ought to be extremely cautious in making a judiciary report in such cases. Many of these causes are peculiar to the woman, as excessive sensibility, and too great contractility of the neck of the uterus, rigidity of the fibres of the body of the organ, or laxity or flaccidity of its neck; habitual delicacy of health, menorrhagic disposition, or debility of constitution; all acute, and a great number of chronic diseases, fevers, continued and intermittent, inflammations of the various organs, peritonitis, gastritis, enteritis, cystitis, hysteritis, rheumatism, pleuritis, variola, rubeola, scarlatina, hæmorrhoids, convulsions, pertussis, chronic catarrh, colic, cholera, diarrhœa, dysentery, constipation, gonorrhœa, leucorrhœa, scirrhus,* cancer, retroversion, polypi,† dropsy, and various diseases, of the uterus; hydramnios, hysteria, moles with the fœtus,‡ &c. The diagnosis of these diseases is easily established. When abortion depends on rigidity of the fibres of the uterus, it recurs at later periods in successive pregnancies, as the uterus gradually expands; but when abortion is caused by laxity of the neck of the organ, the laxity increases in each pregnancy, and the abortion happens earlier. Among the ordinary or accidental causes, may be enumerated violent mental emotions, the impression of strong odours, the fright caused by thunder, noise of artillery, sight of extraordinary and frightful objects, errors in diet, stimulating food and drink, abuse of spirituous liquors, too much exercise, as walking, riding, dancing, running, the agitation of carriages or other vehicles, accidental falls, or blows on the abdomen, wounds, tight clothing, immoderate laughter, excessive venery, surgical operations of any kind, even the extraction of a tooth, &c. Sometimes abortion depends on the death of the fœtus, from debility, ill cured syphilis, monstrous conformation, diseases of the placenta, scirrhus, calculus, hydatids, its implantation over the neck of the uterus, &c. Again, we know that a peculiar constitution of the atmosphere will produce abortion, as an epidemic. (Hippocrates, Foderè.) All powerful medicines, as emetics, purgatives, mercury, &c., may cause the premature expulsion of the fœtus. Venesection has been employed to produce abortion, but it seldom or never succeeds. A woman has been bled forty, and another ninety times, and yet arrived at the full period. (Mauriceau.) This remedy is successfully employed to prevent miscarriage, and has been repeated seventeen times in a case with success. Emetics and purgatives often fail to produce the desired effect, and the latter often destroy the female by inducing abdominal inflammations. Emmenagogues also fail in most cases. Various herbs are employed by the vulgar, mentha pulegium, sabina, secale cornutum, artemisia rubra, &c., and unfortunately with effect. But we must conclude that there is no medicine or abortive means, which always produces abortion, and nothing but abortion; there is none which does not endanger the lives of the mother and infant. Irritation of the cervix uteri by mechanical means, and piercing the membranes, justify the truth of the remark, "*Sæpe, suos utero*

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* Bonetus. † Levret. ‡ Morgagni.

quæ necat, ipsa perit." "Every woman who attempts to promote abortion, does it at the hazard of her life." (Bartley.) There is no drug which will produce miscarriage in women who are not predisposed to it, without acting violently on their system, and probably endangering their lives." (Male.) This, as a general proposition, is perfectly true, but like such rules is liable to exception. "It has frequently occurred," says Dr. G. Smith "that the unhappy mother has herself been the sacrifice, while the object intended has not been accomplished."

When called on in courts of justice, to report on an abortion, supposed to be provoked or criminal, we should duly consider the causes already enumerated, the circumstances which preceded it, whether the female has denied her pregnancy, procured abortives, used drastic medicines, applied to various practitioners without acknowledging her real condition, and a variety of other inquiries, which will suggest themselves to every well-informed practitioner, before we can decide that she premeditated the crime. If the woman had died, we should examine the uterus to discover wounds, and also the abdominal viscera, as it often happens death is produced by enteritis or peritonitis, though the uterus may have been punctured a few hours before death. This was the fact in a case tried at the Old Bailey, during the year 1830; the medical witness for the prosecution ascribed the cause of death to a puncture, which was not inflamed; but the witnesses for the prisoner to enteritis. The former was an excellent pathologist, for he boiled the uterus to throw light on the question at issue! When the fœtus is found, which is rarely the case, we must ascertain its age by the peculiarities described in treatises on obstetricy, with a view to conclude, whether it has arrived at the period of quickening or not. It should likewise be examined in the manner recommended in the article headed Prolicide, Fœticide, and Infanticide.

According to the law of this country, the exhibition of any medicine, for the purpose of causing abortion, renders the accused liable to a prosecution for felony; and, therefore, those young men who vend medicines, ought never to commit themselves by selling the most harmless remedy, even bread pills, to applicants, in the case under notice. Should a woman acknowledge that a certain apothecary sold her medicine for the purpose, he could have no witness to disprove her allegations, and, consequently, must incur the greatest danger to his liberty or life. Some young students and practitioners forget that the crime of abortion is the destruction of a human being; and hence they incautiously supply medicines —in general harmless ones—without the slightest recollection of the perilous situation in which they place themselves. I trust that this caution may be useful to my junior readers.

Medical jurists designate criminal abortion—fœticide; that is, destruction of the fœtus in utero; and apply the term infanticide to the destruction of the new-born infant. Both terms are included in the word prolicide. But before I consider this subject, it is necessary to describe the phenomena of parturition, and the signs of recent delivery.

CHAPTER IV.

OF DELIVERY.

The medico-legal questions relative to delivery are: 1. Do signs exist by which we can determine that a woman has been recently delivered? 2. At what period afterwards can we find traces of delivery? 3. Can a woman be delivered unconsciously? 4. When the mother and infant are found dead, which was the survivor?

Signs of recent delivery. — The signs of recent delivery in the three last months of pregnancy, are observable by the sexual organs, uterus, abdomen, the lochial discharge, state of the breasts, and secretion of milk. In the first days after delivery, the labia majora et minora are dilated, red, tumefied, and sometimes inflamed; the vulva is open; the fourchette is partially or completely torn; the orifice of the womb is so dilated, as to admit the introduction of one or two fingers into the cavity of the organ; the posterior lip is elongated and thickened; and both lips are much thicker than during pregnancy. The womb itself is more voluminous, can be felt above the pubis, or may be felt enlarged by placing one hand on the hypogastrium, and a finger in the vagina. The size and flaccidity of the abdomen, its wrinkled condition, the lochia and milk, are signs of recent delivery; but all may be present after the expulsion of a mole or other morbid growth in the uterus. The lochial discharge has a peculiar odour, and when present is a good sign; but it is liable to be suppressed from a variety of causes, and is entirely absent in some natural cases. Any one of these signs is not conclusive, and does not prove recent delivery; but, taken collectively, and, above all, if we can learn the history of the pregnancy or anterior condition of the woman, we may arrive at a correct conclusion. We can only arrive at a proper conclusion during the first six or eight days, for at the end of ten or fifteen days, it is impossible to decide the reality of delivery. Dr. Montgomery describes cases, in which all the ordinary signs of delivery had disappeared so early as the fifth day. (Cyclopædia of Practical Medicine. *Art. Pregnancy.*)

It is now decided, that a woman may be delivered without her knowledge, if completely intoxicated; if stupified by narcotics, a case which I have recently witnessed; if attacked with apoplexy, syncope, delirium, idiocy, insanity, or during sleep. Dr. Montgomery describes a case of a lady who was delivered during sleep, and whose child, while sleeping in the same apartment, was awoke by the crying of the new-born infant, and then roused the mother. I have attended two women who were delivered during sleep; and who were roused by the screams of their new-born infants; and this fact ought never be forgotten when we are called on to decide questions of infanticide.

Another question of great interest, is to determine the survivorship of the mother or infant, when both are lost in parturition, for in some cases, if the infant survives the mother, the father inherits the property he had by his wife, and if the mother, the property passes to her own family. This is the law of tenant by curtesy. It is impossible to decide this question unless some person has been present at the delivery. It was decided by the Court of Exchequer, in 1806, that the motion of the lips of the infant proved its vitality. (Smith.) It is now universally known to judiciary physiologists, that a still-born infant may be resuscitated an hour after birth; and one case is recorded, in which the infant was pronounced dead, and placed in a corner of the apartment, and, at the practitioner's next visit, which was at the end of twenty-four hours, it was found alive. An infant was extracted by gastro-hysterotomy, by Dr. Blundell and Mr. Green, twelve minutes after the death of its mother, and it was resuscitated. A similar operation was enforced by the law of Numa Pompilius, when women died undelivered.

It is almost unnecessary to allude to the substitution of a dead infant for a living, as such cases are of rare occurrence. Women have shown dead children to appease the wrath of their husbands, who accused them of sterility. Male's Forensic Med. p. 211. Capuron, p. 110. Beck, p. 99. In such cases, the imposition was detected by the state of the sexual organs.* A woman has substituted a living for a dead child. The law only requires, that the medical witness shall prove whether the signs of conception were present or not. An infant must be found, in order to bring the charge of infanticide. A woman may be delivered unconsciously, if labouring under coma, or the effects of narcotics. I have observed a case of the latter description, (See Foderè, vol. 2. p. 10); and a woman, who died before delivery, was placed on the bier for interment, when the child was born. *op. cit.* 11. These are exceptions to the general rule, namely, that healthy women must be conscious of labour. Dunlop records an extraordinary instance of a lady having a child, though she and her husband did not think she was pregnant. Edition of Beck, p. 107. Again, a woman without assistance, may bear her infant so suddenly, on the floor, in the street, or water closet, as not to be able to prevent its death.

Circumstantial evidence on the incidents of time and place, of situation and character, most generally guides the decision.

With regard to the death of the infant before or after delivery, it is a question that may be agitated in civil and criminal cases; as when the succession to inheritance is mooted, or when a pregnant woman has been maltreated, and her infant is supposed to have died in consequence.

The life of the infant is inferred from the good health of the mother, the progressive increase of the abdomen, and the motion of the fœtus. But healthy women may bring forth dead infants; delicate ones have produced healthy children, and the increase of the abdomen may depend on moles, hydatids, dropsy, &c. while the motion supposed to be quickening, has been caused by flatulence. A woman may suppose she feels the motion of the infant, during delivery, yet a putrid infant may be produced. Various causes may act on the mother, and destroy the infant, as unhealthiness of habitation, mode of dress, want of food, or improper use of it, violent exercise, too great labour, violent passions of the mind, venereal excesses, intemperance, hæmorrhage, convulsions, syphilis, small-pox, falls, wounds and accidents, inordinate evacuations; in fact, all the causes of abortion, which were already enumerated. Pressure in difficult labours, may destroy the infant; improper use of instruments, fainting, and diseases of the placenta, will produce the same effect. But the infant may be born alive in despite of most of these causes.

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* A singular case of feigned delivery is recorded by Professor Capuron in his work on Medical Jurisprudence. A young woman who was seduced by her lover, and then slighted, endeavoured to get into his good graces by alleging that she was pregnant. He was, however, implacable. She carried on the deception to the time of delivery. She then confined herself to bed, and stained her linen and bed with bullock's blood. She stated, that she had sent the infant to a nurse. Her seducer still deserted her; but in two years afterwards, demanded his child. The woman now confessed the trick that she had practised, but the civil authorities disbelieved her, had her arrested on suspicion of having killed the infant, and had her examined by three medical practitioners, of whom M. Capuron was one. They decided that she had never borne a child, and she was set at liberty.

The following signs occurring during pregnancy are indicative of the death of the infant—want of motion in the fœtus; the womb feels as if it contained a dead weight, which rolls according to the position of the woman; the navel is less prominent, the milk disappears; the breasts are brown, flaccid, the mother experiences a sense of lassitude and coldness, accompanied with head-ache and nausea. If it is actually dead, and long retained in the womb, putrefaction sets in, the membranes become black, and fœtid discharges take place; there are maceration of the body, presence of the meconium, spots on the skin, violet or brownish blue colour of the lungs, the mass sinking partially or entirely in water, weighing about the seventieth part of the body, and the mouth and throat are often filled with a glary sanguinolent fluid.

Many of these symptoms are equivocal. The fœtid discharges, and state of the skin and bones, cannot be depended on. If the medical examiner be called immediately after birth, he can distinguish these symptoms; but he is seldom called so early, and, in general, not for some days afterwards. The skin will exhibit marks of putrefaction, and will be of a purplish brown or red colour. The umbilical cord is livid, soft, and easily torn. The cranium and thorax are flattened, the sutures of the head are disunited, the brain is almost fluid, and affords a fœtid odour. If the death takes place after birth, there will be the characters of viability and complete developement, signs of external violence, fractures, bruises, perhaps omission of the ligature on the cord, developement of the pulmonary vessels; the arterial and venous canals are straitened or obstructed: lungs spongy, rose colour, swimming in water, even after compression of them; but this happens, if filled with gas, by putrefaction; but if the gas escape by compression, the lungs will sink:—they weigh about the thirty-fifth part of the body. The lungs of an infant already dead, if inflated by the trachea, will preserve the air, as if respiration took place; but they will not weigh more than compact lungs. From the fourth to the eighth day after birth, the cord desiccates and falls off, there is a slight desquamation of the epidermis, a yellow colour of the skin, disappearance of thrombus, ecchymosis, or inflammation, and œdema of different parts; and on pressing the breasts of either sex, a serous fluid appears. From the eighth to the thirtieth day after birth, the navel will be healed, the foramen ovale, arterial, venous ducts, and umbilical vessels will be obliterated by adhesion, the sutures will be more solidified, and the fontanels diminished.

It is important to determine when the peculiarities of the fœtal circulation cease. As the account of Mr. Billard is the latest and best I have seen, I shall quote it.

This able pathologist observed, in nineteen infants of a day old, there were fourteen in which the foramen ovale was completely open, in two it had commenced to obliterate, and in two others it was perfectly closed. In thirteen of these infants, the ductus arteriosus was open, and filled with blood; its obliteration commenced in four, and was completed in one. In the last, the foramen ovale was also closed. The umbilical arteries were pervious at the iliacs, but their calibre was evidently diminished. In all the infants, the umbilical vein and ductus venosus were open and free, and usually gorged with blood. It may be concluded from these observations, that in most cases the foramen ovale, and ductus arteriosus, are pervious on the first day after birth; but that these apertures may be obliterated, even at this period of life.

In twenty-two infants of two days old, the foramen ovale was pervious in fifteen; but completely closed in four cases. The ductus arteriosus was open in thirteen; it had commenced to close in six; and was entirely obliterated in three. The umbilical arteries in all, were more or less obliterated in their whole extent, but the umbilical vein and ductus venosus, although empty and collapsed, admitted the introduction of a moderate-sized probe. These facts prove, that the foramen ovale and ductus arteriosus are generally unobliterated on the second day after birth, and that the function of the umbilical arteries has ceased.

In twenty-two infants of three days old, the foramen ovale was pervious in fourteen, it had begun to be obliterated in five, and was entirely closed in three. The ductus arteriosus was open in fifteen, its obliteration commenced in five, and it was completely closed in two. These two had also the foramen ovale impervious. The umbilical vessels and ductus venosus were obliterated in all. We may conclude from these observations, if we admit them to be sufficiently numerous, that in infants of three days old, the ductus arteriosus and foramen ovale are not generally obliterated.

In seventeen infants out of twenty-seven of four days old, the foramen ovale was open; and in six the aperture was remarkably large and distended with blood. In eleven others, the opening was barely free; in eight the process of obliteration had commenced, and in two it was completed. The ductus arteriosus was open in seventeen of these infants; it was contracted in seven, and completely closed in three: the umbilical arteries in all were nearly obliterated at the navel, but still capable of being dilated at the iliacs. The umbilical vein and ductus venosus were empty, and considerably contracted.

In twenty-nine infants of five days of age, thirteen had the foramen ovale open; but it was more or less contracted. It was greatly dilated in four bodies, and diminished in ten others. It was almost entirely obliterated in ten individuals, and it was so closed in six others that it was impossible to establish any communication between the auricles. The arterial canal was open in fifteen bodies, and very much so in two. The obliteration was considerably advanced in five others, it was nearly closed in seven, and completely so in seven others. The umbilical vessels were perfectly obliterated in all. It is important to observe, that none of the infants whose autopsies are given presented any sign of disorder in the functions of respiration or circulation.

In twenty infants of eight days old, there were but five in which the foramen ovale was open; it was incompletely closed in four; and its occlusion was perfect in eleven. The arterial canal was free in three only; and in one of which it was aneurismal; and in six it was nearly obliterated, and completely so in eleven. The umbilical veins and arteries were entirely impervious.

In infants from the twelfth day to the third week of age, the foramen ovale may remain open without any disorder of respiration or circulation. It appears from the preceding facts, that the fœtal apertures are closed at different periods of life; and that the foramen ovale and arterial duct are generally obliterated from the eighth to the tenth day. We may also conclude that the fœtal vessels are obliterated in the following order:—first, the umbilical arteries; next, the veins of that name; then, the arterial canal; and, lastly, the foramen ovale. (Traitè des Maladies des Enfans, 1833.)

CHAPTER V.

PROLICIDE, FŒTICIDE, INFANTICIDE.

MEDICAL jurists have employed the word *prolicide*, to designate the destruction of the offspring, and divided the subject into *fœticide*, or the destruction of the fœtus in utero, and *infanticide*, or the destruction of the new-born infant. I have already stated the law on this subject, 9 Geo. IV. c. 31, which makes no distinction between the murder of an infant not viable, that cannot live, and one that is viable. A woman who destroys her infant not positively certain to live, for example, soon after conception, is said by some to be less criminal than one who destroys it at a later period, which, if left undisturbed, may become fully developed, and arrive at maturity. The first commits an act upon an imperfect being, which has not acquired the perfection necessary to durable existence—she acts almost on a dead body, *non homo est, qui non futurus est;* the other acts upon a perfect being, which nature destines to occupy a place in the class of her family and of society. If the death of a non-viable infant is less criminal than abortion, the punishment of infanticide ought not to be inflicted, for this is inflicting the greatest punishment for the lesser crime.

Criminal abortion has been justly considered a heinous crime in all civilized countries; but the punishments awarded against those who perpetrated it, varied according to the conclusions drawn as to the age at which the embryo became a living being. The most extravagant opinions were entertained on this subject. It was universally believed by the ancient cultivators of medicine, that the embryo was not endowed with life for some time after conception. Then arose the question, at what age was life infused into it? The answer was most unsatisfactory. Hippocrates was of opinion, that the male embryo became animated in thirty days after conception, and the female in forty-two. Galen considered the animation of the embryo took place at the fortieth day. Others fixed different ages; but all agreed that there were animate and inanimate fœtuses. The canon law of the church of Rome, and the statute of England, even at the present period, admit this untenable distinction (See 9 Geo. IV. c. 31); and, according to the common law of this country, as described by Blackstone, "life does not commence before the infant is able to stir in the mother's womb." The law of Scotland is still more erroneous, for it declares, according to the Stoics, that the fœtus in utero is merely *pars viscerum matris* *—a part of the viscera of the mother.

The general opinion now entertained by those unacquainted with physiology is, that the fœtus is not alive until after quickening, that is, until it stirs in the mother's womb; and, therefore, that it is no crime, according to popular inference, to cause abortion before quickening. Our statute law makes it felony, and condemns the guilty to transportation for seven or fourteen years; and to suffer death if the fœtus has quickened (9 Geo. IV. *olim cit.*). The absurdity of animate and inanimate fœtuses is easily proved. It is manifest to common sense, that the embryo, previous to quickening, which generally occurs about the fourth month and a half after conception, sometimes earlier and sometimes later, and in some cases does not happen at all, must be either dead or alive. That it is not dead is clear, as it does not undergo decomposition or putrefaction, which would be inevitable, as I have already proved, if the embryo was deprived of the vital principle. The dead embryo would be a foreign body, and the uterus would speedily expel it. Moreover, when women die, or are suddenly deprived of life during the early months of pregnancy, we find on dissection unimpeachable evidence that a vital process existed between the fœtus and the womb. Again, we observe the fœtus from the second to the fourth month, perfect in all its parts; and, are we to suppose that this could be the fact were it inanimate before this age? Mauriceau and others declare that they saw fœtuses of ten weeks alive, which moved the arms and legs, and opened their mouths. In fact, no physiologist can doubt this statement; on no other principle is it possible to explain the physical changes that take place in the fœtus and the uterus from the instant of conception to the time of quickening. Dr. Beck has expressed the opinion of all physiologists, "the fact is certain, that *the fœtus enjoys life long before the sensation of quickening is felt by the mother.*" Indeed, no other doctrine appears to be consonant with reason or physiology, but that which admits the embryo to possess vitality from the very moment of conception. "If physiology and reason," continues this excellent jurist, "justify the position just laid down, we must consider those laws which treat with less severity the crime of producing abortion at an early period of gestation, as immoral and unjust. They tempt to the perpetration of the same crime at one time which at another they punish with death."* This incontrovertible conclusion was previously drawn by the revered Dr. Percival:—"To extinguish," said he, "the first spark of life, is a crime of the same nature, both against our Maker and society, as to destroy an infant, a child, or a man; these regular and successive changes of existence being the ordinances of God, subject alone to his Divine will, and appointed by Sovereign wisdom and goodness as the exclusive means of preserving the race, and multiplying the enjoyments of mankind." †

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* The Stoics held, that the soul was not united to the body of the fœtus before the act of respiration; and that the latter was inanimate during the whole period of pregnancy.—*Plutarch's Morals.*

I have made these quotations as some late medico-legal writers have maintained the opposite conclusion. Dr. Gordon Smith, Dr. Good, Dr. Paris, and Dr. Copeland, consider that a fœtus, born before the completion of the seventh month, has a slender chance of surviving; and contend, that no woman ought to be convicted of murder of an infant born within that period. Let us suppose that this doctrine was generally received, and that fœticide before the seventh month was tolerated by the laws of civilized countries, the result would be a considerable diminution, and a final extinction of the human race. Nevertheless these authors admit, as they could not deny it, that infants born before the seventh month have survived, and arrived at maturity. Perhaps they had accommodated the foregoing statement to the casuistical axiom, *non homo est, qui non futurus est*, which is a very agreeable one to prolicides. In recording these remarks, I neither mean nor intend disrespect; but I contend, that no human being is justified in causing abortion before the seventh month, because no one can, in the present state of science, positively declare that a fœtus before that time cannot arrive at maturity, or at the adult age. I therefore completely agree with Percival, Beck, and almost the whole profession, that embryocide and fœticide ought to be equally punished with death. It is acknowledged by all obstetric writers, that it is extremely difficult to dislodge the ovum in the first months of pregnancy by criminal means, and also that a preponderating majority of pregnant women bring forth living infants, notwithstanding the vast number of causes of abortion, and therefore the law is just.

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* Elements of Medical Jurisprudence.

† Percival's Works, vol. ii.

Mr. Billard gives the following Table of Congenital Diseases in favour of and against infantile viability, which I consider correct, and of great importance in medico-legal inquiries.

1. *Vices of conformation, and diseases necessarily mortal.*

Absence of the skin, with want of the parieties of the splanchnic cavities (eventration).

Obliteration, division or duplicity of the œsophagus, ulcers and gelatiniform ramollissement of this organ before birth.

Obliteration of the stomach.

Its gelatiniform ramollissement developed before birth.

Obliteration, division of the superior parts, or the middle or inferior third of the digestive canal.

General ramollissement of the intestinal mucous membrane, developed before birth.

Dropsy of one or both kidneys.

Obliteration and cohesion of the rectum to the bladder.

Malformation of the nasal fossæ with monopsy.

Hernia of the abdominal organs into the thorax.

Inflammation of the pleura, lungs, bronchiæ, developed before birth or during parturition.

Inability to dilate the cavity of the thorax, in consequence of the feebleness of the infant.

Congestion of the lungs and of the heart at the moment of birth.

A single heart, with one auricle and ventricle.

Division of the heart into two parts by a complete septum.

Pericarditis developed during intra-uterine life.

Acephaly and anencephaly.

Vices of conformation of the spinal marrow.

Hydrocephalus, with considerable deformation of the cranium.

Encephalocele with hydrocephalus.

Apoplexy, complicated or not with fracture of the cranium occurring before or during parturition.

Ramollissement of the brain.

Hydrorachis, with ulceration of the tumours.

2. *Diseases which are not necessarily mortal, but prevent development of independent life.*

Ecchymosis, contusions, sanguineous tumours, cynopathy.

Nævi materni inordinately developed.

Cutaneous inflammations.

Adherence of the lips.

Excessive length of the tongue.

Extreme shortness of the pharynx.

Simple œsophagitis.

Follicular ulcers of the stomach.

Simple contractions of the intestines.

Imperforation of the anus.

Intestinal hæmorrhage.

Calculous nephritis.

Peritonitis, with or without dropsy.

Vices of conformation, or depression of the thoracic parietes.

Communications more or less considerable between the auricles or ventricles of the heart.

Hydrocephalus, more or less advanced, without separation of the bones of the cranium.

Imperforation or absence of the vagina.

Accumulation of mucus in the bronchiæ.

3. *Diseases which do not oppose viability.*

Simple absence of the skin.
Cutaneous excrescences.
Excessive development of the capillary system.
Albinism.
Stationary *nævi materni.*
Hare-lip and cleft-palate.
Transposition of the stomach and abdominal viscera.
Absence of one kidney.
Hypospadias, epispadias and pleurospadias.
Extroversion of the bladder.
Umbilical and inguinal hernia.
Transposition of the heart.
Contractions of its orifices, anomalies of their valves.
Persistance of the fœtal openings some days after birth.
Cerebral atrophy.
Hydrorachis, without ulceration of the tumour.
Fractures, luxations, and divisions of members.

The following conclusions may be drawn concerning viability in relation to the pathology of new-born infants:—

I. That every infant which has respired, and is affected with any of the diseases in the first order of the above table cannot be considered viable.

II. That every infant that has respired, affected with the diseases in the second order, is viable, but not likely to arrive at maturity.

III. That every infant that has respired, affected with any of the diseases in the third order, is evidently viable. *Op. Cit.*

But as the law stands at present, the researches which the medical practitioner has to make in cases of infanticide are as follow:—

1. After having ascertained the external appearance of the infant, its volume, length, and respective proportions of its different parts, it is necessary to determine whether there exists any original defect of conformation, or any pathological condition which could induce the death of the infant at the moment of birth, or whether it has not been destroyed by pressure during a laborious parturition.

2. After this examination, we should inspect the internal

organs, and decide whether respiration has been complete, and consequently whether the infant has been born alive.

3. To determine how long a period has elapsed since the infant was living; and what was the cause of death, whether natural or violent.

4. To determine whether the woman to whom the infant is attributed, is really the mother.

The most important of these inquiries are the following:—Has the infant died before delivery? Has it died during delivery? Has it died at the moment of birth, in consequence of deformity of the mother, or congenital disease? In the first place, we are duly to consider the various causes of abortion, and the signs which indicate the death of the fœtus in utero. It is also necessary to decide whether the infant had arrived at the seventh month, when it is considered viable or may live; but it must not be forgotten, that an infant born at the fifth month and a half has survived, though this very rarely happens. The former have been already enumerated; the latter are, the cessation of the motion of the fœtus, the perception of it in different positions by the motions of the woman, the tumefaction or diminution of the breasts—signs which are extremely equivocal. But if during delivery the fœtus is not felt to move, the waters are black and fœtid, the scalp soft, flaccid, wrinkled, and easily excoriated, if the cranial bones are more mobile than ordinary; there is much reason to suppose that the fœtus had been deprived of life for some time. After delivery, the proofs of the death of the fœtus having taken place some days previously, are flaccidity of the body and limbs, desquamation of the cuticle, the skin purple or brown in certain parts, a serous or sanguineous infiltration of the subcutaneous cellular tissue, especially of the scalp; the umbilical cord is soft, flaccid, livid, easily lacerable, the thorax flattened, and its viscera are in a state which shows that respiration could not have happened.

The abdomen is generally inflated, the muscles are flabby, relaxed, and easily torn; but if the infant has breathed and lived for any time, however short, there is after death a peculiar rigidity of the muscles and general firmness of the body which do not exist when it has died in the womb. These signs do not prove that the infant has been destroyed in the womb; but it has been long observed, that when violence has caused its death, it is rarely or never retained so long in the uterus as to admit of the preceding appearances.

If the infant has been destroyed by compression, in consequence of premature rupture of the membranes, there will be tumefaction of the superior part of the head from uterine pressure, the head is deformed, and the brain will be found apoplectic; or the last sign may depend on compression of the umbilical cord, either by being round the neck or body of the fœtus, or by compression of the parts of the parent, which may cause ecchymosis, as if a cord had been tied round the neck, or as if the infant had been strangulated. On the other hand, if the fœtus has died from hæmorrhage during labour, in consequence of detachment of the placenta, or rupture of the umbilical cord, the body will be of a pale vivid colour, the sanguineous system will be empty and collapsed, and if there is rupture of the cord, its extremity will be jagged or irregular.

When an infant has been born alive, the progress of decomposition differs from that which takes place in the womb. In the first case the body becomes soft, and exudes a serous fluid, becomes green, exhales an unpleasant odour, and the cuticle does not peel off in the same manner as when the infant has died in the uterus. In the second case the body is macerated as if in warm water, it is not exposed to the air, and the decomposition is a solution of the parts in the amniotic fluid, not an actual change in the chemical affinity of their components, which takes place when the infant has died after birth, and has been exposed to the atmosphere.

It would far exceed my limits, were I even to enumerate the various defects of conformation of the woman, or malpresentation of the fœtus, which may destroy the life of the latter. I can only advise the practitioner to exert his knowledge of anatomy, physiology, and pathology, in any case on which he may be called upon to give his opinion. He should most cautiously consider the defects of conformation and pathological degenerescences, which may impede the functions of respiration, though it will be seen hereafter, that the proofs afforded by respiration are inconclusive, and that too much importance has been attached to them.

Let us examine the degree of certainty of an infant's being born alive, which is presented by signs afforded by the anatomical examination of the fœtus. Daniel considered that the thorax was amplified by respiration, and this he determined by measuring the cavity before and after respiration. (Comment. de infantum nuper natorum umbilico et pulmonibus.) But the conformation of the chest is subject to too much irregularity, to enable us to arrive at a satisfactory conclusion. Plocquet laid great stress upon the position of the diaphragm, whether depressed towards the abdomen, or elevated towards the thorax; but artificial respiration will effect these positions as well as natural. The size of the lungs affords no positive evidence. Schmitt has seen them fill the chest before respiration, and so much compressed after that process had continued thirty-six hours, as to render it difficult to decide whether respiration had been established. Besides, there may be uterine, vaginal, and extra-uterine respiration before the complete expulsion of the fœtus, and death occur after the birth. The rosaceous colour of the lungs may or may not exist, and is subject to great variety, so that no dependence can be placed on this sign. It may exist in the fœtus long before maturity. The obliteration of the umbilical arteries and vein, of the foramen ovale, and of the ductus arteriosus, evidently prove that the infant has been born alive. But this change does not happen at the moment of birth, nor sooner than eight or ten days, and often not before the first or second week; and consequently this evidence, in most cases, is of little value. See pp. 277–9.

Dr. Thomson holds a different opinion, when he states, "the process of obliteration which begins (after respiration) and is going on in these channels, is so much advanced in a day or two after delivery, as to produce a marked distinction in this respect between a fœtus which has been born alive and one born dead." Lectures in my Journal, January, 1835. M. Billard's conclusions are different. See pp. 277–9.

Plocquet instituted experiments to ascertain the weight of the lungs before and after respiration, in comparison with that of the whole body, and concluded that the weight was 1:70 before, and 2:70 or 1:35 after respiration. The accuracy of these conclusions is denied by Chaussier, Orfila, and Schmitt, of Vienna. Daniel proposed to immerse the lungs, before and after respiration, in a vessel of fresh soft water, to the side of which a graduated scale was attached, to mark the elevation of the fluid. He said, that the condensed lungs would occupy less space than after respiration: this is true, but more delicate instruments are required for the execution of this experiment, before we are justified in adopting it in the practice of legal medicine.

Schreger proposed the immersion of the lungs and heart, the large vessels being tied, in water so far back as 1682; and concluded, that when they sunk, no respiration had taken place, and if they floated, the respiratory function had been established. This is what is called the hydrostatic test, or pulmonary docimacy, upon which little reliance is placed in any part of Europe at the present period. Numerous objections may be made to this test; 1, the infant may respire before birth; 2, it may respire and be destroyed before birth; 3, an infant may be alive, and may not have respired; 4, the lungs may float before respiration; 5, the lungs may not float after respiration. The infant may respire before birth, and be born dead. (Hunter, Bohn, Marc, Siebold, Capuron, Osiander, Sabatier, Mahon, Bredenoll, Hutchinson, and Holmes. See Cyclopædia of Practical Medicine.) There may be intra-uterine respiration. Trans. Royal Soc. of London, vol. xxvi. Edin. Med. and Surg. Journ. No. 73. Hufeland's Journ. 1823. The fœtus may be asphyxied, or remain enveloped in its membranes and be alive, without respiration. (Buffon, Schurig, Le Gallois.) I have observed seven such cases. A delicate immature infant may respire, and yet the lungs will sink in water; and the infant may be born with pneumonia, pulmonary engorgement, or hepatization. (Billard.) In the two first cases, the air cannot arrive in the bronchial vesicles, and consequently respiration will be incomplete. In the last, we often find the subcutaneous cellular tissue of the mouth and limbs gorged with sanguineous effusion, which induces some persons to suppose violence has been employed. Billard has pointed out this error. The lungs may float before respiration, from putrefaction, (Orfila) emphysena, (Chaussier) or insufflation, (Morgagni.) Dr. Bernt, of Vienna, has put an end to the ancient hydrostatic test, and proposed a new one in its place, which is equally objectionable, in consequence of the complication of his instruments. (Programma quo nova pulmonum Docimasia hydrostatica, proponitur. Vienna, 1821.)

It is a matter of great importance to determine how long it is since the infant was living; or how long it has been dead. If the skin is soft, and covered with the white unctious matter, which is seen at birth, if the stomach contains but a small quantity of mucus, the large intestines are filled with meconium, and the bladder with urine, it is probable that life had ceased at or immediately after birth. If, on the contrary, the stomach contains any alimentary substance, and the intestines any matter except meconium, it is certain that the infant has lived for some time. I have already described the change in the vessels peculiar to the circulation of the fœtus. I may mention, however, that the umbilical cord remains soft and humid for fifteen or sixteen hours, and begins to desiccate about the fortieth.

To determine how long the infant is dead, we must consider the state of putrefaction, and all circumstances which hasten or impede it. Warmth and humidity promote decomposition, and a body putrefies more rapidly in running than in stagnant water, or in humid earth, than in argillaceous, sandy or chalky soil.

The next question is, what has been the cause of death?—This is often involved in impenetrable obscurity, as lesions, purely accidental, frequently present the appearances of crime. We should endeavour to determine those that are accidental or involuntary, and those that are criminal.

Death of the fœtus from involuntary causes.—I have already enumerated the most of the causes of the death of the fœtus in utero, and may now caution the young practitioner to bear them in recollection, for otherwise he may commit the most serious errors in giving evidence on the question under notice.

Let him remember, that diminution or deformity of the pelvis, or preternatural presentations of the fœtus, may cause elongation of the head, tumefaction of the scalp, fractures of the cranial bones, blackness of the face, congestion of the brain, ecchymoses of different parts of the surface of the body, fractures of the limbs, and various other lesions, which may be readily mistaken for the result of external violence. Again, the twining of an umbilical cord round the neck or the compression of the os externum, may induce cerebral congestion, as well as marks of strangulation. If the appearances on the head are caused by external injury, they will often exist in situations on which no pressure could have been made. We must always bear in mind the presentation; and by so doing, we can often distinguish natural lesions from injuries.

In those cases in which the neck is compressed by the cord, there will be no excoriation, or desquamation of the cuticle. When there is rupture of the cord during labour, there will be fatal hæmorrhage, but if this accident happens after birth, that is, after respiration, fatal hæmorrhage will seldom result. If the cord be lacerated by violence, its extremities will be irregular, but the flow of blood will cease. The infant will not be destroyed by hæmorrhage, unless the cord is divided with a sharp instrument. Should the infant have been destroyed by detachment of the placenta, the pale waxy colour of the fœtus, the discolouration of the viscera, the vacuity of the heart and large vessels, explain the cause of death. The infant may be expelled suddenly, and falling on the floor or on any other hard substance, the skull may be fractured, and the cord torn. Such cases are related by many obstetric writers. I have narrated three examples, and others are attested by Hamilton, Chaussier, Henke, Klein, Pasquier, Meirieu. Journ. Univ. des Sc. Med. 1820 and 1823. M. Klein collected a hundred and forty-three observations on this point, and asserts, there was not one infant in the kingdom of Wurtemberg, whose skull was fractured, all recovered. Many fell upon the pavement, two of which were affected with momentary asphyxia. Though the cord was lacerated four, three, two, and even one inch from the umbilicus, there was no fatal hæmorrhage.

It is worthy of notice that M. Chaussier made experiments at the Hospice de Maternité, and found, that in all infants dropped from a height of more than eighteen inches, there was fracture of the bones of the cranium. Med. Legale, &c. Par. M. Lecieux, 1819. Klein's observations are considered more correct.

When sudden expulsion of the infant is alleged as the cause of death, it is necessary to examine all circumstances anterior and subsequent, to compare the dimensions of the pelvis, and the volume of the infant's head, to consider the duration of labour, the position of the woman when the infant has escaped, the height of the fall, the substance with which the head came in contact, and finally, the state of the umbilical cord which ought to be ruptured at the placenta or umbilicus, but not in the middle and the extremities of which ought to present the signs of laceration.

When an infant perishes at the moment of birth, by choaking of the air passages, and is afterwards thrown into water or into the water closet, it may be supposed it has been destroyed by submersion or drowning. Every practitioner is aware that infants have been precipitated into the latter situation, and that it is extremely difficult to distinguish whether the fluid in the air passages be mucosity, liquor amnii, or an extraneous fluid introduced. When the fluid contained in the trachea is frothy, we cannot positively affirm that the infant has respired, as insufflation would produce the same effect; or a morbid secretion of gas, or the evolution of air by decomposition. If, on the other side, the fluid is limpid and free from air bubbles, we can affirm that the infant has not respired, but this is no proof that it was dead at birth, or at the moment of submersion. The rigid examination of the physical and chemical properties of the fluid, will alone enable us to determine its real nature.

Death of the fœtus from voluntary causes.—The new-born infant may be the victim of external violence wilfully inflicted upon it, and it may also perish by the voluntary omission of that succour which is necessary to it in the first moments of its existence; hence we distinguish infanticide by *commission*, and infanticide by *omission*.

Infanticide by omission may occur from exposure of the new-born infant to a temperature too cold or too warm, if it is deprived of nourishment or respirable air, and from umbilical hæmorrhage, caused by disruption of the cord. It is difficult to determine what thermometrical degree of heat or cold would destroy life in these cases; but if we find the body of an infant naked, or nearly so, stretched on the ground, discoloured, the great internal vessels congested, and the external or superficial contracted, and almost empty, and with evidence that respiration has taken place, and at the same time there exists no trace of external injury, there is every probability that death has been caused by cold.

The defect of nutriment is generally combined with abandonment of the infant; and to this cause we should attribute death, when atmospheric temperature is not sufficiently cold to be destructive, and when we find the alimentary canal dry and contracted.

The neglect of tying the umbilical cord will expose the infant to fatal hæmorrhage; but this is not always the case, and does not afford sufficient evidence of mortal hæmorrhage, as the large vessels should be empty, there should be paleness of the body, viscera and muscles, to prove that death has been caused by loss of blood from the cord. Again, death may take place from this cause, when it was impossible for the mother to afford the necessary aid to the new-born infant. Thus, in cases of placental presentation, the infant may be destroyed by hæmorrhage, but there will be manifest signs in the woman under such circumstances; she may be in a state of syncope from this occurrence, and be unable to save the infant from perishing. The fœtus is often destroyed from separation of the placenta during protracted labours; in both of these cases the placenta will be attached to the umbilical cord. It has been said that the mother, during convulsions, may possibly rupture the cord, or that this may happen from the motion of the infant, or when the woman is delivered in the erect position, the fœtus having fallen on the floor, &c. In the last case, disruption may happen, but it appears very doubtful in either of the former.

It will be recollected, that M. Klein has recorded one hundred and eighty-three cases of sudden labours, in many of which the cord was ruptured near the abdomen, and in twenty-one cases within the abdomen, yet there was no fatal umbilical hæmorrhage.

It is also to be remembered that the infant's head, in its passage through the external genitals, is so situated, that its face may be in contact with the liquor amnii or blood, and in this way may be deprived of air, or asphyxied by impure air; or the head may be expelled, respiration established, the labour cease, and strangulation be effected before delivery. This case is by no means unfrequent, every practical obstetrician has met with it, and should it happen in a first labour, it is evident, that from the ignorance, pain, or syncope of the woman, the infant may be destroyed. It therefore appears evident, that we must duly consider all these circumstances before we can safely conclude there was criminal intention on the part of the mother.

Infanticide by commission, is indicated by contusions, wounds, luxations of the cervical vertebræ, fractures of the extremities, torrefaction or burning, and asphyxia.

Contusions or wounds.—The ordinary effect of contusions is ecchymosis, which will be more extensive, according to the situation in which it may be placed; but great care must be taken not to confound this appearance with the cadaverous lividity. We should also be cautious to distinguish ecchymosis of the scalp, produced by parturition, from those that result from violence. The former are generally superficial, and situated most commonly upon the vertex, occiput or parietal bones; while those produced by violence are deep and brown, and in various situations, often on the temples. When caused by labour, the infant cannot have respired, and this will be discerned in the manner formerly mentioned. If considerable ecchymosis, contusions, or tumours exist upon an infant that has respired, there is, in general, just ground for the suspicion of criminal violence.

In some cases ecchymosis of the neck may be ascribed to pressure of the orifice of the womb, or of the vulva, or by twining of the umbilical cord round the neck, and present the appearance of strangulation; under such circumstances, the respiration may be impeded or prevented, the infant destroyed, the lungs evince the signs of respiration, and the case will be involved in great obscurity and difficulty. Other facts must exist to warrant a correct conclusion. Sharp wires, pins, and needles, have been thrust into the fontanelles, temples, angles of the eyes, between the ribs, through the heart, and other soft parts. Foderè records the case of a midwife, in the middle of the last century, who destroyed a great number of infants by thrusting a large needle into the spinal marrow in the neck. This woman was insane, for the excuse she offered for her crimes was, " to increase the population of heaven;" " de peupler de plus en plus le ciel." It would be difficult to detect such wounds unless by the most minute dissection. If the wounds are inflicted during life, their edges will be red and ecchymosed, and contain clots of blood; but when made after or immediately before death, there will be no redness, tumefaction of the lips or edges, which will be thin and pale, nor will there be any ecchymosis; and if blood exudes it will be fluid, or if it forms clots they will not be adherent.

Contusions inflicted during life, will be followed by ecchymosis; but blows inflicted immediately before or after death on a body, cannot be followed by extravasation, as the blood cannot flow to the injured part to cause it. The colour of the bruises is a uniform purplish brown, without elevation, which cannot occur in the dead subject. This fact was lately proved by experiments made at the King's College, in London, and by those of Drs. Fletcher and Christison at Edinburgh. (1833-4-5.) On referring to the remarks on sugillations, cadaverous lividities, and ecchymoses, in another section, the diagnosis is rendered still more evident. Lividity may occur when no bruise was inflicted before or after death, but when putrefaction commences. Dr. Christison states, that contusions inflicted on the dead body a few hours after death, will cause appearances which, in point of colour, do not differ from the effects of blows inflicted recently before death; that the discolouration arises, like lividity, from an effusion of the thinnest possible layer of the fluid part of the blood on the outer surface of the true skin, but also from an effusion of thin blood into a perceptible stratum of the true skin itself;

and that dark fluid blood may be even effused into the subcutaneous cellular tissue, in the seat of the discolourations, so as to blacken or redden the membranous partitions of the adipose cells, but that this last effusion is never extensive. It is impossible to fix absolutely the limit of the interval, beyond which contusions cannot be imitated by violence applied to the dead body. It appears to vary with the state of the blood, and the time which elapses before the body cools and the joints stiffen. Sometimes the appearances of contusions can hardly be produced two hours after death; sometimes they may be slightly caused three hours and a quarter after it; but I should be inclined to think this period very near the extreme limit. Chaussier also states, that if the contusions are inflicted soon after death, while the muscles preserve their contractility, there will be neither tumefaction nor infiltration of blood into the cellular tissue, or the blood will only form a clot without adhesion to the divided surfaces. Edin. Med. and Surg. Journ. No. xcix.*

Luxations of the cervical vertebræ.—When death is produced by luxation of the cervical vertebræ, the ligaments of the vertebræ will be torn, the spinal marrow will be bruised or torn; ecchymosis, and sanguineous infiltrations, will indicate that the injury has been inflicted during life, as these phenomena cannot exist when it has been applied after death. It is to be recollected, however, that such luxation may be the effect of injudicious attempts to extract the infant during labour; and it is therefore necessary to ascertain, if the parturition has been difficult, and whether any traction has been applied to the infant.

Fractures of the bones, or wounds, often depend upon parturition, or upon the violence offered by ignorant and bad practitioners; it is therefore necessary to keep these facts in mind, in determining questions of infanticide from such injuries.

Torrefaction, or burning, is a horrible method resorted to for the destruction of infants. Here it will be necessary to examine all injured parts, and to apply the ordinary proofs to ascertain if respiration had existed. In a late case, the coroner (an attorney) was of opinion that a verdict of manslaughter could not be received. The prisoner, a nursery maid, was acquitted.

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* Cyclopædia of Practical Medicine. Art. Infanticide.

Strangulation is an occasional cause of infanticide. In such cases, there will be the mark of the cord round the neck, the face will be livid, the tongue swollen and protruded, the mouth livid and frothy. The vessels of the piamater and brain, and also the jugular veins, are gorged with blood. The lungs are also congested, present ecchymosed spots, and are in a dilated state; the pulmonary vessels are tinged with blood; and the whole will float in water. The umbilical cord may be twisted round the neck, and leave a mark as if strangulation caused death; but the diagnosis is easily drawn; for, in the last case, the lungs are not dilated, and are in the condition of those of still-born infants. It is also to be remembered, that the navel cord may be twisted round the neck. The infant may breathe as soon as its head is born, and be afterwards strangled, before the birth of the body, by the pressure of the external genital aperture on the neck; so that the signs of strangulation, as well as respiration may be present, and no criminality attach to the mother. This fact is to be borne in recollection, as it is favourable to the woman.

Asphyxia.—A new-born infant may be asphyxied by privation of respirable air, by mechanical obliteration of the air passages, by strangulation, by submersion, or by the action of deleterious gases. The infant will be deprived of air by being placed in a chest, or under a pallet, &c.; but, as some minutes must elapse between its birth and death, the usual tests will decide that it has respired. Infants have been destroyed whose nostrils and mouth were filled with linen, hay, earth, &c., by the prevention of respiration; but the presence of these substances will enable us to form a proper opinion. Infants have also been destroyed by pressure upon the mouth and nostrils, trachea and thorax, and by forcing the tongue into the fauces; in all of which cases a very few inspirations only take place, and the pulmonary proof will be decisive.

In all these cases, the rupture of the frænum linguæ, the ecchymoses of the neck, the marks of injuries upon the chest, and in the interior of the mouth, with the signs of cerebral congestion, afford very strong evidence against the accused.

The introduction of fluids into the trachea or lungs, is another cause of suffocation; the discovery of the nature of the fluid by chemical analysis, enables us to arrive at a positive decision against the accused. Submersion or drowning is a frequent mode of infanticide. The pulmonary evidence of respiration, and the similarity of the fluid found to that which surrounds the dead body, enable us to decide that death was caused by submersion. In such cases, there may be more or less, but generally scarcely any, fluid in the stomach. When death is produced by strangulation, there will be ecchymoses on the neck and face, with cerebral congestion. The most frequent mode of infanticide is the precipitation of the infant into the water-closet or privy, which may be the effect of accident; but the pulmonary docimacy will decide if the infant has respired. In the cases recorded by Klein, the majority of the women were primiparous. I have known a woman of low stature delivered of her first child by a single pain, and I have recorded similar instances in my *Manual of Obstetricy.*

Drowning is another cause of infanticide. In this case, the same signs would be as apparent as in adults, which are described in another section. On opening the chest, the right side of the heart, and the large vessels connected with it, are found gorged with blood, while the left side is often nearly empty, the pulmonary artery is tinged with black blood, and the bronchial tubes contain a frothy aqueous fluid. The diaphragm is depressed into the abdomen, and this fact constitutes one of the most remarkable distinctions between drowning when the infant was alive, and the submersion of it in water after death. Another sign is, that the blood is permanently fluid in an individual who has been drowned, but it is coagulable in a body that has been thrown into water after death. It is to be remembered, however that the blood may be fluid in those poisoned by certain narcotics, and by irrespirable gases.

The brain of a drowned person is of a dull red colour on its surface; but the vessels are not so much gorged as in a body of a person killed by strangulation; and there is no extravasation of blood, there being no obstruction to the return of the blood from the head in case of drowning, the suffocation being caused by the want of oxidization of the blood.

In all cases of infanticide, we must be certain that the woman has been recently delivered, and that this event coincides with the age of the infant. The signs of recent delivery have been already enumerated. It is right to mention, that infanticide has been effected by the introduction of needles into the brain (Gui-Patin, Brendel, Belloc), and into the temples, internal canthus of the eye (Brendel), the neck, region of the heart (Foderè), and the abdomen. Infants have been destroyed by poisons, which have been applied by inhalation into the lungs, by commixture with food, absorption through the skin, and by enema. These are to be discovered by the usual tests, which will be mentioned hereafter. A recent case of infanticide was perpetrated at Guernsey by laceration of the frænum linguæ, and puncture of the rectum. (Edin. Med. and Surg. Journ. No. cviii.)

Before concluding this subject, it is necessary to prove the validity of the statement, that the hydrostatic test is no longer considered conclusive. Some of our best jurists cling to it with a degree of tenacity which, to speak in the mildest terms, is exceedingly remarkable. Drs. Beck and Gordon Smith think it decisive, with due precautions; and a reviewer in the Edinburgh Medical and Surgical Journal, in 1826, perhaps Dr. Duncan, states, it affords *presumptive* evidence. The opinions of these talented and distinguished professors are of course entitled to respect and much confidence; but it is to be recollected, that the judges of the land will not receive the evidence afforded by this test. This is not the place to discuss the propriety of their conclusion. Whether the recent modification of the law on the subject is a sufficient reason, lawyers only can determine. As the laws now stand in this country, the questions to be decided in cases of infanticide are, has death been caused by violence, neglect, or ill-treatment? The same evidence is required as in cases of homicide. The question of child-murder is still, however, interesting; for, if the infant has been born alive, there is presumptive evidence against the accused; and, secondly, the decision of the question will affect the disposition of property in cases of tenant by curtesy, as already mentioned. The law in the United Kingdom, Scotland excepted, and in almost all nations in Europe, is, that a child is born alive, when it evinces the slightest voluntary motion. A curious decision, made on this point by the Court of Exchequer, at Westminster, has been already recorded. According to the law of Scotland, the infant must cry to prove its vitality. This is manifestly absurd, as asphyxied infants have been resuscitated after an hour and a half, as I have often witnessed; and infants have been declared dead, the undertaker sent for, and every preparation in progress for burial, though resuscitation was finally established after some hours.

In cases of still-born infants, I have more than once succeeded in establishing the action of the heart, and one or more inspirations, though complete respiration could not be established; and in such cases, no physiologist can doubt the vitality of the infant.

Dr. Blundell and others have succeeded in resuscitating infants, extracted by gastro-hysterotomy, a quarter of an hour after the death of the mother; and a case was recorded in the Lancet, in which an infant was pronounced by the medical attendant to be dead, it was placed as if dead, and on his visit next day, it was alive.

The unanswerable objection to the hydrostatic and other tests, is this, that when the infant breathes before delivery, which every practical obstetrician can attest, not one of them can prove it out-lived birth. Again, if we credit the records of medicine, we can have no doubt but that there may be intra-uterine, vaginal, and extra-uterine respiration before complete delivery. Dr. Beck and other jurists seem to doubt the reality of respiration in the first and second case; but it is fair and reasonable to inquire, what object could influence those who have narrated such cases? Europeans and Americans are among the number.

Dr. Beck, who is an ornament to his profession, and an honour to his country, employed all his argumentative powers against the probability of an infant, whose head was expelled, and who had respired, losing its life during delivery. But his countryman, Dr. Hossack, has recorded a case in point, and there is another recorded in the Medical and Physical Journal, vol. xlii. Suppose the accused do not allege uterine, vaginal, or extra-uterine respiration before complete birth, are not the judges warranted to temper justice with mercy, and to give the prisoner the benefit of the reasonable doubt in such a case? Most decidedly.

To return to the hydrostatic test, from which I have so far digressed; I have to state in conclusion, that Drs. Duncan, Beck, and Gordon Smith, maintain it may afford presumptive evidence in infanticide.

But the following facts must be kept in recollection :—

1. The lungs of a still-born infant will sink in water, but float on the sixth, seventh, or eighth day, when putrefaction has commenced (Muyer in Schlegel), and so early as the third day in warm weather (Beck.)

It is universally known, that the body of a drowned person sinks at first, floats when putrefaction has generated air, and rendered it lighter than water; and sinks again, after the extrication of the air so generated. When the lungs of an infant are putrid, the air is near the surface (W. Hunter, Jaeger), and can be readily squeezed out by pressure, when the lung will sink; whereas, when complete respiration has taken place, no pressure will cause the lung to sink. (Marc, Beclard.) The lungs are the last organs in the body which undergo putrefaction (Camper, Mahon, Beck.) Marc is of opinion that the lungs which have respired, and are afterwards in a state of putrefaction, will always crepitate on incision, which never happens unless respiration has occurred. Secondly, on squeezing the putrid lungs of a still-born infant, they will sink, whereas those of an infant born alive will float.

2. Squeezing the lungs after artificial respiration will not cause them to sink; in such cases, the lungs swam even with the heart attached, and also when cut into pieces, and carefully compressed (Mendel, in Hufeland's Journal der Practischen Heilkunde, Aug. 1812; Bernt, Experimentorum Docematiam Pulmonum Hydrostaticam illustrantium centuria, Vienna, 1823; Merzdorff in Horn's Archiv fur Medezinische Erfarhung, 1823.)

All authors are now agreed, that there is not any difference between natural and artificial respiration in the cases under notice (Edin. Med. and Surg. Journ. 1826. v. 26); "And the hydrostatic test can never prove positively that the child was still-born, but only that it had not breathed." Op. Cit. p. 389, "At the same time, it will yield strong presumptive evidence." "On the whole, then, it follows, from the preceding statements, that when due precautions are observed, and when certain exceptions and corrections are made, the floating of the lungs affords at least strong *presumptive* evidence that the child outlived delivery."—p. 374.

Dr. Beck arrives at the following conclusions on this point:

1. That when the lungs float in water, it must be from one of these causes; natural respiration, putrefaction, or the artificial introduction of air.

2. As the lungs may float from other causes beside respiration, their mere floating is no proof that the child was born alive.

3. As, however, it is possible to discriminate between the floating of natural respiration and of that which is the result of other causes, it follows,

4. That with due precautions, the floating of the lungs may be depended upon as a safe and certain test that the child has been born alive. The same distinguished jurist arrives at the following conclusions, on sinking of the lungs in water:—

1. That when the lungs sink in water, it must be from one or other of the following causes: the total want of respiration, feeble and imperfect respiration, some disease of the lungs, rendering them specifically heavier than water.

2. As the lungs may sink from other causes than the absence of respiration, their mere sinking is no decisive proof of the child's having been born dead.

3. As, however, the sinking from the want of respiration may easily be distinguished from that which is the result of other causes, it follows,

4. That with due precautions, the sinking of the lungs is a safe test that the child was not born alive.

It is very evident, from the preceding statements, that a great degree of caution is necessary in every case, before a decision can be given with confidence; and from the difficulties of the subject, a few practical rules may be laid down for the guidance of physicians and surgeons, when called on to give evidence in cases of infanticide.

The general appearance and condition of the body should be carefully noted, as also the situation in which it had been found, all instruments which might be used criminally; the size, weight, and length of the infant, the proportion of different parts; the degree of developement, the signs of putrefaction, desquamation of the cuticle, the appearance of the navel, and of every part of the body. We should examine whether there be contusions, ecchymoses, excoriations, and be careful not to confound them with cadaverous lividity: if any lesion is found, its precise situation and extent must be described. If wounds exist, their form, length, breadth, and depth, must be accurately noted. The appearances of the head must be observed, and care taken not to confound those which are produced by parturition with those produced by external injury. We should ascertain whether or not there be foreign bodies in the ears, nose, eyes, and mouth, or marks of injury upon the neck, dislocation of the cervical vertebræ, whether the chest be arched or flattened, and when compressed, if a fluid escapes from the mouth or nose; whether the abdomen be soft or tense, if the umbilical cord be flaccid, dry, moist, detached, cut, or lacerated, and its exact length, or if the navel be red, in a state of suppuration or cicatrization; if the testicles have descended, and finally, whether there are dislocations or fractures of the superior or inferior extremities.

Such are the principal points to be attended to, in the inspection of the external condition of the body; all appearances should be taken down in writing, and the document carefully preserved, as the witness may produce it at a trial, or refresh his memory from it; whereas he cannot use a copy in either case, especially in this country. The next part of his duty is to examine the external parts of the body, and here also the appearances are to be recorded.

Autopsy-Dissection.—Medical jurists are not agreed upon the method of dissection, in cases of infanticide. Drs. Beck and Smith think it most convenient to commence the dissection with the mouth and cavities leading to the chest. MM. Chaussier, Renard, Briand, and others, commence with the spinal canal, then proceed to open the head, thorax, mouth, pharynx, and passages to the chest and abdomen, and the abdomen. The former mode is more convenient, and I think the best. It is briefly as follows :—

The neck is to be placed on a block of wood, so as to render its anterior surface prominent. It is right to observe, whether the mouth be open or closed, if the tongue be protruded, or turned back into the fauces. An incision is then to be made from the lower lip to the upper extremity of the sternum; and another along the lower edge of the inferior maxillary bone, the integuments are to be dissected back, and all marks of violence, ecchymoses, &c. noted. The lower jaw is now to be divided at its symphises, the parts attached to its internal surface separated, the tongue should be depressed, when there will be a complete view of the mouth and pharynx. We should carefully observe whether there be any foreign body or sanguinolent appearance, and if the glottis and epiglottis be natural, and if there be fluid in the larynx or trachea;—the abdomen is next to be examined, an incision is to be made from the sternum to the spine of the ilium on each side, the flaps turned back, and the umbilical vessels observed and tied. We are next to observe the appearances of the abdominal viscera, and to note every thing unusual. We should ascertain if the umbilical vessels be empty, or contain coagulated blood, if cut or lacerated, if the ductus venosus be permeable or obliterated. The size of the liver should be noticed, its large vessels tied, and the organ be removed and weighed; but previous to its removal, the gall bladder is to be inspected, the colour of its bile noted, or whether it be entirely empty. The stomach should be removed, after its apertures have been tied, and its contents, if any, carefully examined. We should further observe whether the intestinal canal contains meconium, fæces or other matter, or presents any sign of disease; and lastly, if the bladder be empty, or full of urine.

The cavity of the thorax may be opened in the ordinary manner, but on dissecting the integuments, every appearance of lesion is to be noted, and a minute examination instituted, in order to discover if the chest have been punctured. The cartilages of the ribs are to be divided with a scissors, in preference to a scalpel. We should next examine the size and colour of the lungs; if of a red or rosaceous colour, if these organs fill the thoracic cavities, and if the tendinous centre of the diaphragm be depressed. We are to take into account the size of the heart, the dimensions of its cavities, if they contain blood, the colour of its tissue, the degree of opening or closure of the foramen ovale and ductus arteriosus, the presence of fluid or coagulated blood; always recollecting that the most dependent portion of the lungs, is engorged with blood, and brownish, and that the site of this engorgement will vary according to the position in which the body had lain while becoming cold, and that this appearance will be greatest in proportion as the patient has not lost blood. After having examined the œsophagus and trachea, and noted their appearances, the large vessels are to be tied, the lungs and heart removed, and the former subjected to the hydrostatic and other tests, in the manner hereafter mentioned. In examining the vertebral column or spine, an incision is to be made from the occiput to the sacrum, the integuments and muscles carefully removed, and the annular portion of the vertebræ divided with a strong scissors, which may be introduced under the fifth lumbar vertebra. During this examination, we must observe all lesions, ecchymoses, dislocations, fractures, wounds, and punctures; but we must not consider the congestion of the spinal veins or the presence of limpid, yellow, or viscous serosity, the effect of violence; as these are ordinary occurrences, and will be found in such situations as the posture of the body favours.

The best mode of opening the head, is to make an incision from the root of the nose to the third or fourth cervical vertebra, and another from ear to ear, the integuments are to be dissected back, and all lesions carefully examined and noted, wounds, punctures, fractures, &c. A small opening is to be made with a scalpel, through the anterior fontanelle, and the sutures divided with a scissors, great care being taken not to wound the sinuses or larger vessels: the bones of the cranium can be easily separated in this manner. We are now to ascertain if there be blood in the ventricles, or on the base of the brain, to remove the cerebrum and cerebellum, and carefully dissect both.

The examination of all the organs having been completed, the inferences to be drawn will be evident, after a careful perusal of the statements made in the course of this work. But to render the information as complete as possible, it is necessary to describe the method of instituting the hydrostatic test.

The water in which the lungs are to be placed, must not be too hot or too cold, but of the temperature of the atmosphere; it should contain no salt. If these precautions are observed, the lungs, with the heart, will float or sink in water; if they float, it is proper to notice, whether upon or under the water; if they sink, whether gradually or rapidly.

The lungs are to be taken out of the water, the large vessels tied, the heart separated, and the organs then weighed to ascertain the proportion they bear to the weight of the body. They are to be immersed again, then the lobes separately, and lastly, each to be cut in small pieces; on incising it, we should note if there be crepitus, the tissue compact, or in a morbid condition. Should the fragments float, they are to be firmly squeezed in the hand, and again placed in the water. The inferences to be drawn from these experiments are the following, according to Dr. Beck. When there is nothing on the body of the infant to account for its death during delivery, the lungs untouched by putrefaction or artificial respiration, affording a crepitus on incision, floating entire or in segments on the surface of the water, and if the segments float after firm pressure, then the evidence is irresistible that the infant was born alive, and enjoyed perfect respiration. If only the right lung, or its pieces float, the respiration has been less perfect. If some pieces only float, while the greater number sink, respiration has been still less complete. If neither the entire lungs nor any section of them float in water, the evidence is decisive that the child never respired.

It is right to mention, that Professor Bernt is of opinion that Plocquet's test affords decisive evidence in a few cases, and no more than presumptive evidence in the rest. No reliance is to be placed on any single test, but a conclusion drawn from all that can be applied. It is scarcely necessary to remind the medical jurist, that he should ascertain if the woman has been recently delivered, and learn the whole history of her case. The signs of recent delivery have been already enumerated. He should inquire whether the labour was *sudden*, in what position it took place, if the infant was born immediately after the rupture of the membranes, or how soon after; if delivery took place without assistance, or what assistance was afforded; if there was hæmorrhage before, during, or after delivery; on what day and hour did labour commence, and did the birth take place; if the woman was insensible before, during, or after delivery; if the infant respired, if not, what attempts were made to resuscitate it. All these questions should be put in a mild manner; the solemn duty of the medical jurist being to ascertain fact, and to take no interest in the prosecution or acquittal of the accused; he should confine himself solely to the duties of his profession, and strenuously avoid putting, what lawyers call "leading questions," or intimidating the accused; or violating one of the best principles of our humane laws, by extorting a confession, or inducing a suspected female to criminate herself. His sole duty is to give the received opinion of his profession, regardless of consequences, but on all doubtful cases, leaning to the side of mercy.

In the foregoing dissertation I have only discussed the principal points which claim attention in cases of infanticide, as many more particulars will be found in the course of this work, more especially in the article on Homicide, in which the danger and mortality of wounds, contusions, and fractures, will be duly considered. Enough, however, has been said to warn the practitioner against committing errors, which have but too often led to the execution of innocent women:

I might illustrate this assertion from the authority of Dr. W. Hunter; but his opinions are too well known to require expression in this place. There is also a vast deal of information compiled by Dr. Arrowsmith, in his laborious article on Infanticide, in the Cyclopædia of Practical Medicine.

CHAPTER VI.

MEDICO-LEGAL QUESTIONS, RELATING TO VIOLATION OF WOMEN.

According to the law of this country, the slightest penetration is sufficient to constitute a rape; and the crime may be committed on an infant of the tenderest years without destroying the marks of virginity. 9 Geo. IV.

This was decided by a consultation of the judges in the case of Rex *v.* Russen. See Russell on Crimes, Chitty's Medical Jurisprudence, vol. i. 1834.

The legal definition of rape, is the carnal knowledge of a woman by force, and against her will. The carnal knowledge of a child, under ten years of age, with or without her consent, is considered rape.

Again; "a common whore may be ravished against her will, and it is a felony to do it." Howell's State Trials, vol. ii.

A husband may be executed for a rape on his wife, by holding her while another violates her. Thus, in 1637, Lord Audley, Earl of Castlehaven, was tried for a rape upon his own wife, for having held her by force, whilst his servant forcibly, and against her will, had carnal knowledge of her; and he was executed for it.

It was formerly required, that the woman or child should complain while the injuries were recent; and Blackstone observes, "that the jury will rarely give credit to a stale complaint."

Modern magistrates also look with great suspicion on all charges of rape, unless made in a day or two after its alleged occurrence.

No charge is more easily made than rape, or rebutted with more difficulty.

The law is perfectly just, that the slightest penetration constitutes the crime of rape, though the hymen and other reputed signs of virginity are present afterwards, because the woman may be impregnated, and she, or a child before the age of puberty, may be affected with syphilis or gonorrhœa. It is a great error to urge, that an adult cannot violate a child of seven or ten years of age, on the grounds that he could not possibly effect penetration, from the disproportion of the penis and vagina in such cases; but the male may communicate a most loathsome disease, and for the reasons stated above, is most properly held guilty of rape. Nevertheless, a surgeon held the contrary in the newspapers, that a man, ordered for execution, ought to have a respite, and on application to the Secretary of State this was granted, and the culprit was transported for life. In my opinion he ought to have been hanged, according to his sentence, and this was the opinion of the judge who tried him. Comment on the newspaper correspondence is unnecessary—it showed the grossest ignorance.

In a preceding section I have stated the law upon this subject; and it now remains to consider the questions which may be submitted to medical jurists for their decision. These are as follow:—1. Are there certain signs of defloration? 2. Can we distinguish between forcible violence against the consent of the accuser, and whether the signs of violence be not attributable to the introduction of other extraneous bodies into the external sexual organs? 3. And whether a woman can be violated without her knowledge? And 4, whether pregnancy can follow violation, or is a proof of acquiescence on the part of the woman?

1. Are there certain signs of defloration? To determine this question, we must decide whether there are certain signs of virginity. We have to refer to anatomical and obstetric works, for a description of the external genitals in a virginal state, to enable us to form a correct decision upon this question. The external genital organs are those connected with the subject; and a description of them is necessary.

In virgins, the external labia are thick, firm, elastic, and internally of a vermillion or rosaceous colour, their edges in apposition, so as to close completely the orifice of the vulva. They are soft, pale, and separated in women accustomed to venereal enjoyment, or subject to leucorrhœa, or who have practised masturbation. But these characters are not to be depended on, as women of strong constitutions may have the signs of virginity; and virgins the latter signs from leucorrhœa, or fluor albus. In fact, no positive conclusion can be deduced from the state of the external or internal labia. The same must be said of the frænum labiorum; it may or may not be ruptured during coition, and every obstetrician of ordinary experience, can attest its perfect condition during parturition. Besides, it may be ruptured by falls, external injuries, or by the passage of solid morbid growths. The orifice of the vagina is usually narrow, but it may be relaxed by leucorrhœa, or may be larger in a virgin than in a woman who has been violated. In some women it is particularly closed by the hymen, a membrane long held as the surest sign of virginity, which, in fact, is no proof at all.

It is now universally known, that a great variety of causes besides coition, may destroy this membrane; as sudden exertion of the lower extremities, leucorrhœa, masturbation, the introduction of the finger and other matters into the vagina, a frequent practice with lascivious women, excoriation, confined menstrual fluid, and various morbid growths, both solid and fluid. It would be difficult, if not impossible, to decide whether the vagina had been dilated by the penis or by some other substance. The hymen does not always exist, even in infants, and does not entirely close the vagina at puberty, so that the introduction of the penis may be effected, if not disproportionate. (Teichmeyer, Brendel, Severin, Pineau, &c.) Indeed women have been in labour, and the hymen perfect. (Mauriceau, Ruysch, Pare, Meckel, Walter, Baudelocque, Smellie, Carpuron, Nægele, &c.) It is, therefore no infallible sign of virginity, nor is its absence alone a positive proof of defloration.

The carunculæ myrtiformes were long considered as the remains of the hymen, but this is denied by Hamilton, Conquest, and Velpeau. They have been seen in infants and virgins, and are no proof of defloration, because, like the rugæ of the vagina, they are only effaced by repeated coition. Dr. Beck admits, that many of the above signs are equivocal, but if taken in connexion with one another, he thinks it cannot be possible that all mentioned in the chaste state, can be absent without a strong suspicion against the female. I cannot assent to this conclusion, as I think experience has proved that all the physical signs of virginity are equivocal, and all may be absent from causes already enumerated, without room for a full-grounded suspicion against the female. From my own observation, and the result of my researches, I can arrive but at one conclusion, that there are no positive signs of virginity, and consequently those of defloration are extremely uncertain; and this, I find, is also the opinion of the faculty of Leipsic, of Metzer, and of Morgagni. The presence of the reputed signs of virginity affords no decisive proof of chastity, and their absence no decisive proof of incontinence. If all the reputed signs described above exist, the female feels offended at the examination, or rather displays evidence of shame; if her morals, age, and education have been good, then there are strong grounds for supposing her in possession of her chastity; and if all the contrary signs exist with a suspected reputation, and an equivocal virtue, then there is reason to pronounce a contrary opinion.

It is necessary to recollect the habit of body and age of the patient, as signs of virginity are most perfect between puberty and the twenty-fifth year, after which period they become more equivocal.

When defloration of any young female has recently taken place, the signs are very evident. The laceration of the hymen (if it exist), the presence of its remains covered with clotted blood, the contusions of the labia majora and minora, of the clitoris, and carunculæ myrtiformes, the redness and tumefaction, or laceration of all the external genitals, leave no room to doubt. But almost all these marks will generally disappear in three or four days. They disappear almost instantaneously in chlorotic and leucorrhœal females. (Briand, Manuel de Medicine Legale.)

Second question—Can we distinguish between defloration, the result of voluntary carnal commerce, or that which has been effected by violence, or by the introduction of foreign bodies into the vagina?

It is extremely difficult to determine this question in a positive manner. Many medical jurists are of opinion, that contusions, lacerations, inflammation of the vulva, thighs, arms, breasts, and other parts of the body, prove that violence had been used, and that the female did not consent. But it is to be recollected, that many women will not consent without some force, and also that injuries of the genital organs may follow a first congress, when the sexual organs are disproportionate.

Every person knows, says a French jurist, that at the epoch of puberty, young girls of an erotic temperament, employ foreign bodies for the gratification of their desires, and may cause laceration or contusion of the external genitals; and who does not know, that these excesses have brought on delirium, and who is ignorant of the deplorable effects of onanism? (Briand.) Again, women have injured the sexual organs for the purpose of accusing an innocent man of rape. (Foderè.)

In all cases of defloration we must consider the age, strength, and state of mind of both parties. When this crime is perpetrated on children of a tender age, the disproportion of the organs will be followed by the marks of injury already enumerated. On the other hand, a strong woman may accuse a delicate or old man, or boy, or one who is impotent. It is held by most jurists, that it is almost impossible, at all events exceedingly doubtful, that one man can violate a strong adult female. (Mahon, Farr, Foderè, Capuron, Beck, Briand, Thomson, &c.) The exceptions to this rule are, when the woman labours under insensibility from violence, syncope, or fainting, narcotics, intoxication, and, according to the faculty of Leipsic, when she sleeps profoundly. The anecdote of Queen Elizabeth and the sword scabbard, is often brought forward to prove, that the power of resistance, on the part of the female, is almost always effectual in preventing the perpetration of rape by one man. The following question was put to the medical faculty of Leipsic, "whether a single man could ravish a woman?" The reply contained the following words, "Feminæ cuilibet facilius est, si velit, penis immissionem recusare, vel cum multis modis impedire, quàm viro eidem invitæ planè intrudere."

Notwithstanding this view of the subject, it may be often erroneous, as it can have no reference to those cases in which the adult female is delicate, nervous, or in bad health; when she is under age or advanced in life; when she is violently beaten, rendered insensible, her mouth stuffed with a handkerchief, tow, &c., or overpowered by the accused. De la Motte relates the case of a servant at an inn, who effectually resisted the attacks of an officer, although assisted by five of his comrades; but such a case must be of rare occurrence, as criminal trials very frequently prove.

In all charges of rape, it is indispensably necessary to examine the sexual organs of both parties. The man may be impotent from the causes already described; the penis may have been destroyed by sloughing or cancer, &c., or the organ may be so small as to cause no pain on its introduction into the vagina. Zacchias mentions a singular case of this last kind. The woman may labour under a variety of malformations, which prevent the performance of the generative act. A speedy examination should be made in all cases, for the reasons stated in a preceding paragraph.

The state of mind of the woman must be kept in view, as an idiot at twenty, or upwards, can make less resistance than a girl of fourteen.

Venereal infection is a proof of violation, when it coincides with the time at which the crime is alleged to have been perpetrated, that is, if it appears from the third to the eighth day; and, above all, if the accused is affected with the disease. Every well-informed practitioner is aware that gonorrhœa or syphilis cannot manifest itself immediately after congress, and therefore, if found on the female within twenty-four hours, is a strong proof against her chastity, and in favour of the accused.

Every well-informed physician and surgeon is conversant with the purulent discharge of female children of scrofulous and delicate habits, from the period of dentition to the age of puberty; such discharge is seen almost every day in dispensary and hospital practice among the poor. It is described by Underwood, John Hunter, Hamilton, Astley Cooper, Dewees, Jewel, myself, and others; and is often mistaken by ignorant practitioners for gonorrhœa.

There is no fact better attested than this, that purulent discharge from the genital organs of both sexes, from the period of infancy upwards, may arise from causes purely physical, chemical, or specific.

Venereal excess between two persons, whose organs are healthy, may also cause a discharge, more or less intense, in one or both; but still the symptoms are not so violent as in gonorrhœa. Even children of both sexes are subject to genital discharge before and during dentition, from worms, or from local injury of the sexual organs, caused by defloration of female children. The last fact is one of great importance to those who are called on to give evidence before magistrates, or in courts of justice, in charges of rape. The accused may be free from gonorrhœa, and declare, that if the child is infected it is not by him. The medical witness should ascertain the lesions, and discriminate between purulent discharge the consequence of violence and inflammation, and that arising from infection. The history of the case will enable him to form a correct opinion in the majority of instances; and he ought to ascertain, whether the child has not been subject to discharge previously to the supposed offence. In a case in which I was consulted, and which is recorded in the Lond. Med. and Surg. Journ. 1830, vol. v. the girl had laboured under purulent discharge five years before, and was then ten years old, and exceedingly delicate. On that occasion I afforded abundant evidence of the liability of female infants, and of girls until the age of puberty, to purulent discharge from the vagina. We know that equitation, injury on the perineum, calculus in the bladder, stricture of the urethra, hæmorrhoids, gout, rheumatism, certain cutaneous diseases, as herpes, impetigo, serpigo, lepra, &c., the terebinthinate medicines, lytta, spices, diuretics, sexual intercourse during the catamenial or lochial evacuations, the introduction and long retention of a bougie in the urethra, irritation in different parts of the alimentary canal, constipation, certain aliments and medicines, as new beer, asparagus, &c.; in a word, diseases of organs, which strongly sympathize with the genito-urinary system, may cause simple gonorrhœa. Cases are recorded in which gastro-enteritis, diseases of the respiratory system, coryza, cynanche, pneumonia, and asthma, had terminated by a copious discharge from the urethra. It is admitted that there is a reciprocity of action between the mucous, serous, fibrous tissues, the digestive, respiratory systems, the urinary apparatus, the urethra, and uterine system; and that none of these systems can be irritated or inflamed without more or less affecting the urethra or uterine apparatus. So also the latter organs cannot be affected without implicating the former tissues in various degrees. Dr. Titley relates a case in which he supposed venereal gonorrhœa existed for a period of three days, and for which he prescribed the usual remedies; but before the patient had taken the medicine, he was seized with a smart attack of gout, and in a few hours the urethral discharge had vanished.

Capuron was consulted in a supposed case of defloration, in which a purulent discharge escaped from the vagina; the external genitals were ulcerated; but that able physician ascribed it to the cause under notice, and the girl was soon restored to health. M. Biessy, of Lyons, relates a case in which all the surgeons of that town certified a child had been violated in consequence of the presence of a discharge. He denied it, which induced the Mayor to request five physicians to examine the child separately, without knowing the application to each, and they all agreed that she only laboured under a simple mucous discharge. (Manuel Medico-Legale, &c.)

The following case is related by the revered Dr. Percival:

"Jane Hampson, aged four, was admitted an out-patient of the Manchester Infirmary, Feb. 11, 1791. The female organs were highly inflamed, sore, and painful; and it was stated by the mother, that the child had been as well as usual till the preceding day, when she complained of pain in making water. This induced the mother to examine the parts affected, when she was surprised to find the appearances above described. The child had slept two or three nights in the same bed with a boy fourteen years old, and had complained of being very much hurt by him during the night. Leeches and other external applications, together with appropriate internal remedies, were prescribed; but the debility increased, and on the 20th of February the child died. The coroner's inquest was taken; previous to which the body was inspected, and the abdominal and thoracic viscera found free of disease. From these circumstances, Mr. Ward, the surgeon attending this case, was induced to give it as his opinion, that the child's death was caused by external violence; and a verdict of murder was accordingly returned against the boy with whom she had slept. Not many weeks elapsed, however, before several similar cases occurred, in which there was no reason to suspect that external violence had been offered, and some in which it was absolutely certain that no such injury could have taken place. A few of these patients died. Mr. Ward was now convinced that he was under a mistake in attributing the death of Jane Hampson to external violence, and informed the coroner of the reasons which induced this change of opinion. Accordingly, when the boy was called to the bar at Lancaster, the judge informed the jury, that the evidence adduced was not sufficient to convict; and that it would give rise to much indelicate discussion, if they proceeded to the trial; and that he hoped, therefore, they would acquit the accused, without calling witnesses. With this request the jury immediately complied. The disorder in these cases," says Dr. Percival, "had been a typhus fever, accompanied with a mortification of the pudenda."

Mr. Kinder Wood relates cases of a disease somewhat similar, in which there is fever for three days, inflammation of both labia, clitoris, nymphæ, and hymen, followed by sloughing and death. The mortality was ten in twelve, and the disease considered a peculiar kind of eruptive fever. (Med. Chir. Trans. vol. vii.)

I have already alluded to the case of a delicate scrofulous girl, aged eleven years, who had purulent, or rather mucous discharge from the external genitals, and accused a young man of eighteen, whose genitals were developed in an extraordinary degree, of having violated her person. Two unqualified apothecaries swore the girl had been violated, a rape committed, and gonorrhœa communicated. Dr. Gordon Smith, Mr. Whitmore, and myself, were of a different opinion. The frænum labiorum was perfect, the hymen absent, there was a discharge without any sign of inflammation the day after the alleged intercourse, and a small dark spot, observed by Dr. Smith only, on the thigh. The examinations of the medical men were made at different times. The case was grievously mismanaged for the prisoner; the only evidence in his favour was Dr. Smith's, which was contrasted with that of the two medical witnesses for the prosecution. The man was found guilty, and sentenced to six months' imprisonment, and lectured by the chairman of the Middlesex sessions (Mr. Const) on his good fortune—that he was not hanged. The mother subsequently informed Dr. Smith that her daughter had had the discharge since she was five years old. The medical witnesses for the prosecution declined examining the person of the prisoner, though those on his side had assured them he had no discharge from the urethra, and had not had any for six months previously. The case was tried in November sessions, 1829. When the girl was examined at the trial, and asked why she did not tell the domestic who disturbed the parties during the alleged intercourse, she replied, "she forgot it." A girl of eleven years old, violated by an adult, forget it! Cases like the present are unfortunately of too frequent occurrence, and are attested by Sir A. Cooper in the following impressive language:—

"There is a circumstance which I am exceedingly anxious to dwell on, I allude to a discharge from young females; and I hope that there is not one here this evening but will be strongly impressed with the importance of the subject. Children from one year old, and even under, up to puberty, are frequently the subjects of a purulent discharge from the pudendum, chiefly originating beneath the preputium clitoridis; the nymphæ, orifice of the vagina, and the meatus urinarius, are in an inflamed state, and pour out a discharge. The bed-linen and rest of the clothes are marked by it. It now and then happens, to a nervous woman, to be alarmed at such an appearance, and she suspects her child of having acted in an improper manner; and perhaps, not quite clear herself, she is more ready to suspect others, and says, 'Dear me (if she confesses), it is something like what I have had myself!" She goes to a medical man, who may unfortunately not be aware of the nature of the complaint I am speaking of, and he says, 'Good God! your child has got a clap.' (A laugh.) A mistake of this kind, gentlemen, is no laughing matter; and, though I am glad to make you smile sometimes, and like to join in your smiles, I cannot do it on the present occasion, for it is too serious a matter. I can assure you a multitude of persons have been hanged by such a mistake. I will tell you exactly what takes place in such cases; the mother goes home, and says to the child, 'Who is it that has been playing with you? who has taken you on his knee lately?' The child innocently replies, 'No one, mother; nobody has, I declare to you.' The mother then says, 'Oh, don't tell me such stories; I will flog you, if you do.' And thus the child is driven to confess what never happened, in order to save herself from being chastised: at last she says, 'Such a one has taken me on his lap.' The person is questioned, and firmly denies it; but the child, owing to the mother's threats, persists in what she has said. The man is brought into a court of justice; a surgeon, who is ignorant of the nature of the discharge I am now speaking about, gives his evidence; and the man suffers for that which he never committed. The mother is persuaded, if there be a slight ulceration on the parts, that violence has been used, and a rape committed: she immediately says, 'What a horrid villain must he be for forcing a child to such an unnatural crime, and communicating to her such a horrible disease! I should be glad to see him hanged.'

"If I were to tell you how often I have met with such cases, I should say that I have met with thirty in the course of my life. The last case I saw was in the city: a gentleman came to me, and asked me to see a child with him, who had a gonorrhœa on her. I went, and found that she had a free discharge from the preputium clitoridis. I said that there was nothing so common as this. There was considerable inflammation, and it had even proceeded to ulceration, which I told him would soon give way to the use of the liquor calcis with calomel. 'Do you tell me so? (he replied) why, suspicion has fallen on one of the servants; but he will not confess. If he had appeared at the Old Bailey, I should have given my evidence against him; for I was not aware of what you have just told me.' I told him that, if the man had been hanged by his evidence, he would have deserved to be hanged too.

"I am anxious that this complaint should be known by every one present, and that the remarks which I have made should be circulated throughout the kingdom. When a child has this discharge, there is a heat of the parts, slight inflammation, and this sometimes increases, and goes on to ulceration. This disease sometimes occurs in children at the time of cutting their teeth."—*Lectures on Surgery.*

Dr. Dewees, the eminent professor of midwifery, in the University of Philadelphia, has also given an excellent account of the morbid discharge under notice, in his Treatise on the Physical and Medical Treatment of Children, pp. 326, 435. He says, "We occasionally find that very young children have a discharge from within the labia of a thin acrid kind, or of a purulent appearance. When this occurs in very young subjects, it almost always proceeds from a neglect of cleanly attention to these parts, either by withholding a frequent use of lukewarm water, or permitting the child to remain too long wet. . . . . Children, however, of a more advanced age, have also discharges of a purulent character, that seem to arise from a morbid action of the mucous membrane of the vagina or labia. This frequently shews itself about the *fifth* year, and may continue, if neglected, to almost any period. Parents, therefore, cannot be too much on the alert when this discharge is discovered on their children; nor too early in the application of suitable remedies for its removal. It is in a great measure owing to this neglect, that fluor albus, or whites, become so common, and of such difficult management in adult age. If not interrupted in the beginning of its career, it is apt to continue until the period of puberty, over the phenomena of which it but too often creates an unfriendly influence."

Orfila gives a table to enable medical jurists to discriminate in all cases of stains on linen, whether by spermatic, leucorrhœal, gonorrhœal, lochial, mucous and salival fluids. The evidence afforded by this table is far from being positive, and I therefore omit it.

Third question.—Can a woman be violated without her knowledge? Decidedly she can, if under the influence of insensibility from violence, fainting, asphyxia, narcotics, or intoxication. I have recorded a case in which a female was impregnated during inebriation, and was of course unconscious of it during the first seven months of utero-gestation. She felt much offended, when I hinted my suspicions as to her being pregnant, but soon afterwards her paramour revealed the secret to me. Though it is difficult to suppose a woman can be violated during sleep, yet under some circumstances it seems to me very possible. A married woman who has had children, whose sexual organs are dilated, may be violated during sleep; and a virgin can be deflowered without her being awoke. Drs. Beck, Gordon Smith, Bartley, Foderè, and Capuron, doubt the possibility of a married woman being violated during sleep.*

Fourth question.—Can violation be followed by conception? It has been long decided in the negative, as it was supposed that women who were influenced by the depressing passions could not conceive (Bartley and Farr); Capuron, Foderè, Beck, Good, &c. agree with the majority of the profession, that conception may happen, and is not accelerated or prevented by the volition of the sexes. This is the received and only rational opinion. How many women anxiously wish for children and have none, and vice versâ. Women have conceived during asphyxia, inebriation, and narcotism. From the foregoing observations, it is evident that medical science does not furnish positive proof of any of the questions discussed in this article, but merely probable and presumptive evidence. I may observe in conclusion, that the probabilities are greatest when a child of five, seven, nine, or ten, is the accuser, after due consideration of the sexual diseases of this period of life. Her age excludes all appearance of consent, as she cannot have desire, her organs being undeveloped, as stated in the section on disqualifications for marriage, nor is it likely any foreign body will be introduced. The case will be stronger attested by any other marks of violence. Great caution is, however, required in these cases, as depraved mothers have induced their children to make accusations against innocent persons.

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* The cases mentioned by Dr. Gooch and Dr. Casack, already quoted, prove the possibility of defloration of virgins during sleep. See p. 245.

In arriving at a conclusion in charges of rape, the following inquiries are necessary:—

1. The time, place, and all circumstances connected with the assault, should be noted and carefully considered.

2. The age, strength of the body, state of health, of mind, and the general characters of the accuser and accused, are to be duly estimated.

3. The education, station in life, and previous intimacy of the parties, are to be recorded.

4. All marks of violence, or disease, are to be taken into consideration.

5. The organs of both parties are to be examined, and their proportions compared.

The only other medico-legal question connected with morals is sodomy. In these horrible cases it is said, there will be inflammation, excoriation, or syphilitic ulceration, dilatation of the sphincter, scirrhus of the rectum, hæmorrhoids. It is to be recollected that syphilitic excrescences are often seen on the perineum and about the anus, caused by disease from the genitals, where no suspicion can be entertained: "no man," says Dr. Beck, "ought to be condemned on medical proofs solely." The physician should only deliver his opinion in favour or against an accusation already preferred.—Zacchias. The law on this subject has been already stated, and a most extraordinary case described. See p. 230.

CHAPTER VII.

MEDICO-LEGAL QUESTIONS RELATING TO ATTEMPTS AGAINST HEALTH OR LIFE.—HOMICIDE BY CONTUSIONS AND WOUNDS.

Under this head we have to consider, 1. contusions, wounds, and homicide by them; 2, homicide by asphyxia, strangulation, suffocation, submersion or drowning, asphyxia by non-respirable gases, or by deleterious gases; 3, homicide by poisoning.

Of homicide by contusions and wounds.—In a former section, I stated the law on this subject, and need only remind the reader, that by Lord Lansdowne's Act, 9 Geo. IV. c. 31, contusions are classed with wounds; and under this statute we have to comprehend ecchymosis, concussion or loss of power of organs, distortions, dislocations, fractures, burns, wounds of fire-arms, and wounds in general.

Contusion is an injury, and sometimes a wound, inflicted by a hard, blunt instrument, without loss of substance, or wound of the skin, but with laceration of the cellular tissue and extravasation of blood, either diffused or congested on the skin or in the cellular tissue: if the skin be divided, it is designated a contused wound.

Ecchymosis, or blackness, is an extravasation of blood by the rupture of the capillary vessels; and hence it follows contusion, but it may exist as in cases of purpura hæmorrhagica, scurvy, and other morbid conditions without the latter; and we occasionally see persons arise from sleep with numerous ecchymoses, which are sugillations, and called by the vulgar, "dead men's pinches."

When ecchymosis is caused by injury, it generally appears in a short time, or in a few hours, but sometimes not before the lapse of days. The part appears red and bluish, then black or leaden colour, next violet and yellow, and is marked most in the centre. Its progress and duration will be modified by age and constitution.

It may be produced in deep-seated organs as in the muscles of the thigh, &c. in the aponeuroses of the hands and feet, on the spinal marrow, whose membranes may be lacerated, without any blackness of the skin, or it may not appear before ten or fifteen days. Again, the viscera in the chest, abdomen, and pelvis, may be ecchymosed from external injury, though the integuments are discoloured. It is easy to distinguish ecchymosis from lividity, consequent to acute or chronic exanthematous diseases, vesication, inflammation, or gangrene, by recollecting the successive changes of colour, and the absence of all symptoms characteristic of these maladies. It sometimes occurs, that intense vomiting causes rupture of minute vessels in the stomach, intestines, diaphragm and lungs; and, on dissection, we find black spots of various sizes, which are often mistaken for gangrene. In such cases these spots are soft, and easily detached, while the membranes that enclose the blood in a recent ecchymosis are firm. If we make a free incision through an ecchymosed part, we can readily wash out the effused blood, but ablution will not remove the changes effected by gangrene.

It too often happens that ecchymoses are confounded with cadaverous lividities, which are more or less extensive, of a brown, black, red, or violet colour, forming rapidly after death, particularly on the back, thighs, sides, anterior surface of the body, on all those parts upon which the body has lain while it has been becoming cold. These also appear where pressure is made by the clothes, and from their resemblance to the injuries caused by flagellation with rods, are called by the French, *vergetures.* A more appropriate term is, *cadaverous lividity or sugillation.* These are frequently observed in the most dependent parts of the lungs and abdominal viscera. Professor Andral's remarks upon this subject are deeply interesting, and may be seen in the second volume of his Pathological Anatomy, translated by Drs. Townsend and West. These sugillations will be modified by age, constitution, state of the weather, progress to putrefaction, &c. They cannot be confounded with ecchymosis, as there is no effusion or infiltration of blood in the cellular tissue.

Dr. Fletcher, of Edinburgh, most ably defended a man named Reid, in 1835, who was tried for the murder of his wife, and chiefly based his defence on the distinction between livor and ecchymosis. He saved the prisoner's life, contrary to the evidence of Professors Christison and Traill, who were imposed on by ignorant practitioners. I have published a full account of this important case in my Journal. See *Lond. Med. and Surg. Journ.* 1835, Vol. viii. Nos. 185, 6, 7.

The term *commotion* or *concussion*, is applied to the shaking of an organ by a blow or fall, more or less remote from it, which causes derangement of its function or lesion of its structure. Thus, a blow or fall on the head, feet, knees, or body, causes concussion of the brain, which may be followed by slight stunning, by hæmorrhage from the ears, nose, or eyes, or by immediate death. Concussion of the spine may or may not affect the brain, and if violent, will be followed by paralysis of all the parts, whose nerves arise below, and sometimes of those above the site of the injury. In such cases, there may be paralysis of the lower extremities, of the rectum, bladder, and generative organs. The organ likely to be affected next to the brain and spinal medulla is the liver, which may be followed by hepatitis, icterus, rupture, hæmorrhage, and death. Every scientific practitioner is aware, that a violent blow on the stomach, will suddenly extinguish life, by injury of the nerves and paralysis of the whole nervous system, and yet no mark of lesion can be observed in the organ on dissection. I have known a want of knowledge of this fact to be the cause of acquitting a man who killed his victim by a blow of a mason's hammer on the epigastrium. The medical witness was ignorant of the danger of contusion on this part, and the judge reprimanded him very severely for not having opened the body. The practitioner was satisfied the blow was the cause of death, as the sufferer died almost immediately, but he was unable to account for the result to the court. Sir Astley Cooper mentioned two cases in his lectures, of men who were instantly killed by a blow on the stomach. The anatomist recollects the ganglionic nerves situated beneath and about the stomach, and that a blow on them will cause such concussion as to be followed by instant death.

Distortion, is a serious injury followed by engorgement, which may not be dissipated for weeks or months, according to the habit and constitution of the patient. There is sometimes stiffness of the joints; sometimes relaxation of the ligaments, which is to be ascribed to a scrofulous or ricketty disposition.

Luxations are generally free from danger, though they may be followed by paralysis and atrophy from the injury of a nerve, and sometimes by tetanus.

Fractures, if simple, are not dangerous, but if compound or comminuted, especially in or near joints, they are often serious and may terminate fatally. I am greatly surprised at the French jurists who give a table to show the period at which fractures will be consolidated, as every man of science must be convinced of the inaccuracy of any fixed period for consolidation, which will be completed sooner or later, according to the age, constitution, and state of health, of the patient.

For example; the same kind of fracture will be united in twenty days in an infant, in thirty or forty in an adult, and in fifty or sixty in an aged person, or perhaps not at all. Every well-informed practitioner will agree with me in opinion, that fractures will not be united so soon in patients affected with gout, scrofula, cancer, or venereal disease, mollities, or frigilitas ossium, as in healthful individuals. The best authors on Surgery amply attest the truth of this position.

Burns present three degrees of intensity; 1, when there is irritation or slight inflammation of the skin; 2, when there is vesication; 3, when there is disorganization of the skin, cellular membrane or more deep-seated parts.

In the first and second case there is little danger, unless the injury is extensive, or occupies parts endowed with great sensibility; in general, both are cured in a few days. In the third case there is great danger, as the degree of constitutional irritation is considerable, and often proves fatal to young and middle aged persons, and to those advanced in life by profuse suppuration or gangrene. Even these cases may terminate favourably, but with great deformity.*

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* The observations of Dupuytren, Crampton, and Earle, on burns, ought

Gun-shot wounds are generally dangerous, but here also we must be guided in our prognosis by the habit and constitution of the patient. In the works of Hennen, S. Cooper, Guthrie, Larrey, Thomson, Ballingall, and all others—we learn that the bravest men have lost their lives on the field of battle, by prostration of the vital powers, who were only grazed by cannon and musket balls. In other cases, the bravest have lost their lives by hæmorrhage, inflammation, or gangrene, or have been disabled by atrophy of the injured limbs, or have recovered while a foreign body has been lodged for months or years in the brain and other parts of the body. Sometimes stiff joints are formed, or interminable fistulæ, which may extend to remote parts. The judicious and scientific surgeon will be cautious in forming a prognosis in these cases.

From the preceding remarks, it must be obvious that an attempt to classify wounds into mortal and non-mortal, is useless, and indeed impossible. I cannot therefore assent to the classification of Marc, Biessy, and others, as I believe the constitution and habit of the sufferer will modify all external injuries to an illimitable extent. I am inclined to think that every well-informed surgeon will assent to my position, that wounds and external injuries will be more or less fatal, according to the part or organ they occupy, and according to the constitution of the patient.

In estimating the danger of external injuries, we should be guided by the opinions laid down in the best works on the different branches of medicine.

The majority of medical jurists agree, that penetrating wounds of the great cavities, or in other words, of the brain, heart, lungs, and digestive organs, are always doubtful and often fatal.

Wounds of the head. In all these cases, we should consider the degree of concussion, the site of the wound, and the tissues which are injured. Wounds of the head are inflicted with cutting or blunt instruments, or by falls. If there is

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to be perused with attention by every medical practitioner. Those of the first and second will be found in my Journal, 1834, vols. iv. and v.

contusion of the occipito-frontal aponeurosis, there is danger of erysipelatous inflammation of the scalp and membranes of the brain, and of course the prognosis is very doubtful. Nevertheless, the most formidable symptoms have terminated favourably, as attested by Sir Astley Cooper. If a cutting instrument penetrates obliquely to the cranium, union may take place (Boyer,) but there is much more probability of erysipelatus inflammation, or of exfoliation of the cranium. Many of these penetrating wounds terminate favourably. If the wound penetrates the brain, there may be immediate death, or it may happen in a few days; and in such cases, the danger is exceedingly great, though recovery may take place.

Incised wounds of the scalp, if judiciously treated, terminate favourably in most cases. Perpendicular wounds of the scalp may terminate favourably and speedily by proper management, but penetrating oblique wounds are tedious, and often followed by exfoliation. If a wound penetrates the brain, there is danger of hæmorrhage and inflammation; and these wounds are highly dangerous when a blunt instrument strikes the head perpendicularly; a soft puffy tumour is produced, which is removed in five or six days by proper treatment, but concussion may cause death.

When the blow is inflicted obliquely, blood is extravasated in a sort of cavity, caused by the laceration of the cellular tissue, remains for days, and sometimes requires to be opened. In cases in which the pericranium is detached, exforiation of the bone generally follows. I have known a case in which the integuments of the forehead were torn by a gun-shot wound: they hung over the face, and were excised by an apothecary's apprentice, who was amazed when I explained to him the error he had committed, and the certainty of exfoliation taking place sooner or later, as the bone was denuded, and the lips of the wound so far distant, that it was impossible to approximate them. A piece of bone, the size of a crown, was thrown off by exfoliation three months afterwards. The countenance of the patient, an interesting young woman, was greatly deformed, and she became subject to epilepsy. The old surgeons considered wounds of the scalp and fractures of the skull highly dangerous for three weeks, and never declared the patient out of danger until after the lapse of that period. The rule was not a bad one, but the period of danger may be later, and is undefinable.

Fractures of the cranium must be produced by injury capable of causing concussion of the brain, and hence they are properly considered highly dangerous. A blow upon the crown of the head may cause fracture at the base of the cranium; a blow upon the superior lateral part will cause fracture on the orbitar vault, and a blow upon the occiput may fracture the frontal bone. The danger of fractures and other injuries of the skull are so ably described in all recent works on surgery, that I need not dwell further upon them in this place.

If a man dies within six months from the date of an injury inflicted on him, the English law declares it murder; but there is very inadequate punishment for mutilations, which disable persons for life, or cause blindness or great deformity. When the skull is thin, a slight blow may fracture it and cause death. A man was tried for murder, who struck a boy on the head with a small stick and fractured his skull. It was proved at the trial that the skull was unusually thin, and that the blow would not have fractured it if of ordinary thickness; there was no proof of malice, and the prisoner was acquitted.

Again, when there is disease of the brain, produced by injury or other causes, a slight blow may kill the individual, which would have little effect on a healthy person. These facts are in favour of the accused, and ought to be remembered by medical witnesses. A slight fall may cause a rupture of an artery in the brain, which may be followed by effusion and sudden death. Mr. John Bell mentions the case of a woman, who slipped on going down stairs, and fell on her heel. She ascended the stairs, went into her room, staggered, and dropped dead; and on dissection an artery was found ruptured in the base of the brain.

It is also supposed, that holding in the breath while raising a heavy load, or making strong muscular exertion, which renders the face florid, may congest the brain, and cause rupture of some of its vessels, which will be followed by coma, apoplexy, or sudden death. A trial of a prize-fighter lately took place, the prisoner was acquitted, as the surgeon swore, the effusion on the brain was caused by falls and not by blows. This was questionable evidence.

Wounds of the Face.—Contusions and wounds of the eyebrows and lids are generally free from danger, though they may cause blindness. Penetrating wounds of the globe of the eye, of the optic nerve, and causing fracture of the orbitar plate, are dangerous, as the brain may become affected. In some habits, all or any of these injuries may be followed by erysipelas of the scalp, and consequently be highly dangerous. Contusions of the globe of the eye may induce various disorganization of the complicated and delicate tissues of that organ, which, though indestructive to life, are generally destructive to vision, and therefore productive of great personal injury. Contusions and fractures of the nose are attended with little danger, and total ablation of the organ is no longer an irremediable deformity, as appears by some successful operations for supplying its place from the integuments of the upper lip and forehead.

Fracture of the anterior wall of the *frontal sinus* is not dangerous; but not so of the posterior, from its contiguity to the brain. Slight fracture of the anterior wall of the maxillary sinus is not dangerous; but, if produced by a violent contusion, as a gunshot, fistulous openings are apt to be produced, and also considerable deformity.

Fracture of the *superior maxillary bone or zygomatic arch* is not dangerous, unless in syphilitic or scrofulous habits, when caries may occur. Luxations and fractures of the *inferior maxillary bone* are speedily cured, as also wounds of the cheeks and lips. Wounds of the *tongue* are easily remedied by suture; but total ablation of the organ renders mastication, deglutition, taste, and pronunciation defective.

Wounds of the neck are highly dangerous, from the number and importance of the vessels and nerves, situated in this part. Too many young surgeons are unmindful of the danger of injuries and wounds of the neck, as they consider these very slightly, when the carotids are undivided. It is to be recollected, however, that a blow of a blunt instrument on the posterior surface of the neck will cause concussion of the spinal cord, fracture of the vertebræ, or dislocation of the odontoid process; while a deep wound on the anterior surface of the neck may divide the phrenic nerve, and, in an instant, paralyse the diaphragm and muscles of inspiration, or divide the pneumo-gastric nerve or par vagum, and paralyse the stomach, impede respiration and the action of the heart. It seldom happens, however, that the nerves or vessels on both sides on the neck are divided, and hence the wonderful escape from immediate death. If the trachea or œsophagus is fairly divided, the wound is considered mortal by medical jurists, as recovery seldom happens in such cases, but there are exceptions. When the internal jugular vein or carotid artery is divided, death is inevitable in a few minutes, unless ligatures are applied; and, it appears, from the testimony of Briand, that in nineteen such cases nine were saved by these means. The section of the principal nervous trunks, such as the great sympathetic and tenth pair, are mortal, by depriving organs essential to life of a proper supply of nervous influence: the division of the recurrent nerve will cause aphonia, and punctured wounds of any of the principal nerves will be followed by inflammation in all parts which they supply, and often by death. Lastly, the cutting instrument may pass between the cervical vertebræ and wound, or completely divide the spinal marrow.

Wounds of the Larynx may prove fatal. Sir Charles Bell relates a case of a man who inflicted six slight wounds on the larynx, and died of hæmorrhage.

Wounds of the Glottis have been followed by granulations, and flaps in other cases, which caused suffocation. A ball has entered at the pomum Adami, and made a circuitous route round the neck, and was found at the opposite side to which it entered.

Wounds of the chest.—Contusions and wounds of the chest may be followed by pleuritis, pneumonia, and various disorganizations of the lungs, pericardium and heart, and are therefore considered very serious injuries. Contusions on the female breast may induce cancer; and those inflicted on the ribs, caries, or necrosis. When a penetrating cutting instrument divides the mammary or intercostal arteries, there will be effusion of blood into the chest (hæmathorax), which may produce death, but this is a rare occurrence. Section of the axillary or subclavian arteries will be generally fatal, unless a ligature is speedily applied.

Army surgeons are of opinion that wounds of the chest are seldom fatal, unless death occurs from hæmorrhage within forty-eight hours after their infliction. We frequently observe penetrating wounds of the chest in our hospitals which seldom prove fatal.

Luxation of the sternal extremity of the clavicle requires the immobility of the limb for twenty or thirty days, while that of the humeral extremity is followed by deformity.

Fractures of *the ribs* are generally unattended with danger, but by wounding the pleura or lung, may, of course, induce serious diseases of these parts. Fractures of the sternum, though very rare, may injure the subjacent organs; those of the acromion, and coracoid process and neck of the scapula, are not dangerous, but may produce defective motion of the arm or shoulder joint, or atrophy, or paralysis of the limb.

Fractures of *the vertebræ* are usually complicated with concussion, or other injury of the spinal marrow, and are often followed by paralysis of the inferior extremities, and of some parts of the abdominal viscera; and these affections may occur after the lapse of some months, when no trace of the former injury remains.

The *prognosis* of penetrating wounds of the thorax is uncertain, as there will be hæmorrhage into the chest, and likewise the introduction of air; both of which will compress the lung, may induce inflammation, suppuration or induration of some part of the organ. Wounds of the lungs, pericardium, heart, aorta, pulmonary vessels, venæ cavæ, vena azygos, and thoracic duct, are in general to be considered mortal; but they are not invariably so.

Wounds of the abdomen.—Contusions on the abdomen will cause concussion or commotion of the subjacent viscera, or rupture, hæmorrhage or death, though there may be no appearance of injury on the abdominal surface. The muscles may lose their contractility, and hernia be produced. Wounds of the abdominal parietes are highly dangerous, as they almost generally cause peritonitis; and should any of the large vessels, aorta, cava, &c. be divided, immediate death must follow. Wounds of the nervous centres (solar plexus), which supply the abdominal viscera, will be followed by a mortal paralysis. Effusion of bile, blood, urine, food or fæces, is fatal, in consequence of inducing peritonitis, which in general cannot be cured. Hence wounds of the stomach, liver, intestines, spleen, kidneys, uterus, bladder, when distended, and thoracic duct, are generally fatal.*

Wounds of the organs of generation.—Contusions and fractures of the pelvis are not dangerous, unless the latter are considerable, or unless some vessel of importance is wounded. Wounds of the spermatic arteries and veins of the male are necessarily fatal, as beyond the power of art; but they rarely exist independently of other lesions equally unfavourable. Wounds of the scrotum are not dangerous, unless a large quantity of blood be effused into the tunica vaginalis; those of the vesiculæ seminales are not mortal, but are a cause of absolute sterility. Section of the penis is not dangerous, as hæmorrhage can be easily arrested; the wound cicatrizes; but there will be incomplete erection on the injured side of the organ. Total ablation of the penis may prove fatal, unless the arteries are secured. The penis has been excised from the pubes during coitus, without fatal hæmorrhage; and a gentleman who attended my lectures in 1834, informed me of a case, the particulars of which were unusual. A young gentleman, a patient of his, indecently exposed himself to a servant-maid, while adjusting the dinner-table. She struck him with a carving-knife, and amputated two inches and a half of the virile member. The hæmorrhage was very profuse, and the narrator of the case was sent for to arrest it, which he accomplished. Contusions of the testicles may induce scirrhus, which will require castration.

Lesions of the generative organs of women.—Contusions and wounds of the external genitals are not dangerous, unless inflicted during menstruation, when serious consequences may result. It is very evident that the uterus in the unimpregnated condition can scarcely be injured by external violence. In the gravid state, when it ascends above the pubes, it may be seriously injured by blows, falls, &c., which may induce fatal inflammation or rupture of the organ, detachment of the placenta, and death of the fœtus. If the organ is punctured, the wound must be considered fatal, if followed by inflammation or gangrene, to both the mother and the fœtus. The organ may be inflamed and gangrenous, complicated with peritonitis and enteritis, in the last month of pregnancy, and without any external violence, or even any evident cause; a case of which is narrated by Dr. Malins, of Liverpool, and myself, in the Lond. Med. and Surg. Journ. 1831, vol. vi. pp. 52, 213. In cases of prolapsus of the organ, its total removal has been effected by ignorant midwives; and the fatal injuries inflicted by uneducated male obstetricians, by manual and instrumental operations in difficult parturitions, are unfortunately too notorious of late to require further comment.

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* Gun-shot wounds, in which balls or pieces of clothing are driven into the head, chest, or abdomen, are generally succeeded by inflammation abscess, and death; but not always.—See article Wounds in *Cooper's Surgical Dictionary.*

A few years since, medical practitioners in this country and in France, were found guilty of manslaughter, and very justly, for the rashness and violence of their obstetric operations, which were more characteristic of illiterate savages, or of the darkest ages, than of obstetricians acquainted with the principles and practice of midwifery at the present period. Like all ignorant and bad practitioners, the delivery of the woman seemed their only object, and as to the consequences of contusions and lacerations of her organs, and their fatal results, they were totally forgotten.

A man was executed for murder at Edinburgh, a short time since, who inflicted a wound with a shoemaker's knife, within the vagina of his wife. Mr. Watson and Mr. Newbigging examined the body so minutely that they detected the vaginal wound which caused death. (Edin. Med. and Surg. Journ.)

Lesions of the extremities.—Contusions, dislocations, fractures, and wounds of the superior and inferior extremities, are seldom fatal, unless followed by tetanus or gangrene. The loss of a member, or part of a member, by external violence, accompanied with laceration, may destroy life by intensity of pain, prostration of the vital powers, by hæmorrhage, inflammation, profuse suppuration, gangrene, or sloughing. The divisions of the large vessels and nerves of the extremities, are mortal wounds, unless timely aid be afforded. Here we must recollect the danger of comminuted fractures, especially in or near joints, wounds of joints, inflammation, suppuration, hectic fever, constitutional irritation, habit of body, &c.; the danger of which is fully described in standard medical works.

JUDICIARY EXAMINATION OF WOUNDS.

According to the law of this country, the surgeon must describe the length, depth, and situation of wounds; also state whether they are mortal or dangerous.

He is to examine *the organic state of the wound*, and ascertain whether it be in a healthy or morbid condition. Thus a slight blow may cause rupture of a vomica or an aneurism, strangulation or gangrene in a hernia, or rupture of a varicose vein in the leg. A person who inflicts a wound or contusion in such cases cannot be responsible, as he could not foresee the danger, and the mischief he does is often independent of his will.

We must examine the *state of the constitution and habit of body*, as wounds are greatly aggravated when the patient is of a weak, enfeebled constitution, or is labouring under a chronic disease, as scrofula, syphilis, or cancer.

We must also bear in mind the *personal conduct of the patient*, as his refusal to submit to proper treatment or a necessary operation, his removing bandages, his inattention to regimen, his use of improper aliment or ardent liquors, which were interdicted by his medical attendant on account of his condition, and may render a wound, not necessarily mortal, highly dangerous or fatal.

The *conduct* of the attendants must be carefully observed, as their opposition to the proper treatment, and their excitement of strong emotions in the sufferer, may cause death.

We should also remember the state of the weather, or insalubrity of situation, as an atmosphere too warm or cold, or that charged with putrid emanations, or that of hospitals, may render a wound mortal. The occasional occurrence of hospital gangrene, and epidemic erysipelas, such as has been often present in Hospitals, and well known to scientific surgeons, may of course render a wound, not dangerous after infliction, ultimately fatal.

Lastly, we should consider *whether the treatment had been scientific.* Here we ought to be exceedingly cautious in giving an opinion, and always recollect that the greatest diversity of opinion, both as to the nature and treatment of by far the greatest number of diseases exists, and that the authority of eminent men may be quoted on both sides of the question. On the other hand, when gross ignorance is displayed, and fatal injury follows, such conduct must be exposed in favour of the accused. This rule was laid down by Dr. Percival, and ought to be followed. It would, however, be an ungracious task to volunteer an opinion on the practice of a respectable contemporary, even for the promotion of the ends of justice. But no honourable practitioner would violate the etiquette and fraternal feeling which have invariably characterised the profession, by exposing or censuring the practice of another from private pique or jealousy, and for no public advantage. Every man who does so will be despised by the profession, and indeed by the sensible and thinking part of the public. He violates the golden rule of ethics, "Do unto others as you would they should do unto you." All medical practitioners, like their fellow-mortals, are fallible; whoever is without this imperfection, may throw the first stone. Every man engaged in practice meets with bad and fatal cases, and may make mistakes; but it would be unjust and unwarrantable in a brother practitioner to expose him to public censure, unless the interests of humanity and science demanded it. As the law now stands, the president of the College of Physicians or College of Surgeons is as liable to be criminally indicted for unsuccessful practice as the veriest quack in this land of empirics; such was the opinion lately laid down by Judges Park and Garrow, at the Old Bailey, in St. John Long's trial for the murder of Miss Cashin; but they went further, and declared, no medical practitioner, regular or irregular, can be subject to a criminal information. Lord Coke held it felony for an irregular person to undertake a cure, and allow the patient to die. Sir Matthew Hale thinks this an error, and Judge Blackstone sides with the former; Mr. Justice Bayley holds it manslaughter—Willcock on the Laws relating to the Medical Profession, p. 227. Such is the discord among the judges upon this point; but common sense and justice are in favour of the profession and against empirics. From the preceding statements it is evident that one medical practitioner should be cautious in condemning the practice of another, unless under the circumstances already mentioned, that is, when the patient's life is endangered.

The rules to be followed in making an autopsic examination for juridical purposes have been in a great measure described in the article infanticide. Other points are to be kept in view, as the posture of the body, whether it is naked or covered, if it is in contact with any hard substance, if it is so situated that putrefaction may be retarded or promoted; how it is situated relatively to surrounding objects, and particularly with respect to weapons of all descriptions.

Every part of the body is to be examined, and all marks of violence carefully noted, when a weapon is found in the hand of the deceased, if this really produced death, or was so placed by a homicide. We should compare its dimensions with those of wounds, and consider the state in which the body has been found, and before removing it, ascertain the site, direction and extent of lesions; and finally, avoid confounding the derangements which may be caused by removal with those produced by former violence. We should also notice whether the instruments have pierced, cut, or contused any part, and if the deceased could have made resistance. It is also necessary to note the apparent age, muscularity, condition of the body, whether full or emaciated, the colour and quantity of hair, and in a word, every feature which can prove identity. It is right to observe the dress, all papers, money and other matters found about the person of the deceased.

Having accomplished these things, the body may be removed, washed, and every mark of injury, contusion, ecchymosis, wound, fracture, dislocation, carefully examined, and we must take care not to confound cadaverous lividity with ecchymosis. If the body is that of a female, we must likewise examine the mammæ, abdomen and reproductive organs, in order to ascertain signs of recent or former delivery, or of wounds.

After all these considerations on the external state of the body, we are next to examine all the outlets, observe all fluids contained in them, and sometimes analyse the latter.

The body may be examined in the manner laid down when describing infanticide, or as recommended in the recent manuals of practical anatomy. The most minute examination of all internal organs should be made, and all marks of disease carefully noted, in writing.

A question has arisen, whether an autopsic examination ought to be made when putrefaction has set in; and it has been decided in the affirmative. Orfila was charged to examine a body, which had been buried twenty-nine days; the external surface was generally in a state of putrefaction, and exhaled an insupportable odour, which required the use of disinfecting agents; but the digestive organs, liver and spleen, pancreas, bladder, heart and lungs, were unaffected by decomposition, and traces of poison were found in the stomach and bowels. A case was lately recorded in one of the French journals, in which poison was discovered fourteen years after the interment of the body; and another at Bristol, after exhumation of a body which was buried for fourteen months.

The brown, green, or blackish colour of the skin should not prevent the examination of the body, and the fetid odour and all danger arising from effluvia, will be obviated by a free use of the chloruret of lime, or soda, in the proportion of six ounces to fifteen pints of water. Orfila strongly advises this solution when exhumation is to be effected, and says some pints of it are to be poured on the earth, when the labourers approach near the coffin, and also when the latter is uncovered before raising it from the grave. The labourers should apply a handkerchief, dipped in vinegar, to the lips and nostrils, as in some cases instant death has been produced by opening a grave.

M. Orfila has described the appearances of bodies and their habiliments when exhumed after different periods from burial; but his account is not important to British practitioners, who are seldom required to give evidence in such cases. A full report of M. Orfila's observations will be found in my Journal, 1835, vols. vii. and viii.

It is indispensably necessary to open the head, chest, and abdomen, in all cases; to describe to magistrates and judges all morbid appearances as concisely and as intelligibly as possible, avoiding technicalities whenever we can, and observing generally that all parts were healthy, with the exceptions which may be found. The object of a coroner's inquest in these countries is to ascertain the cause of death, and not to hear a tedious and unintelligible detail of the natural appearances of every tissue in the human body. The questions are, were the morbid appearances observed sufficient to account for death, and were they produced by natural disease or by violence? I shall consider all the bearings of this position in my remarks on the manner of giving medical evidence.

When the body is mutilated externally, we should examine all the cavities, especially the intestinal canal, as cases are recorded in which poison was detected under such circumstances. A remarkable example is afforded by Sir Edmonsbury Godfrey, who was strangled, thrown into a ditch, and his sword driven through his body. On withdrawing the sword, it was not stained with blood, the wound was inflicted after death, and the real murderers were detected and executed. Another remarkable case is recorded of a man who was shot, and a pistol found by his side. The ball was extracted, and found too large for the pistol, which excited suspicion, and led to the discovery of the murderer, who was executed.

Can we distinguish wounds inflicted before and after death?

In describing wounds, I have endeavoured to point out the diagnosis between ecchymosis and cadaverous lividity—a point of the greatest importance.

When a wound is inflamed, in a state of suppuration or cicatrization, it must have been produced before death.

If it is inflicted in the last moments of life, its edges are more or less retracted and tumid, it is covered with a clot of blood, there is a sanguineous infiltration in the cellular tissue.

When a wound is made some hours after death, its lips are retracted as if inflicted during life, but they are pale, not tumefied, without any trace of blood; the cellular tissue is not infiltrated, unless a large vein has been divided.

But when a wound is made immediately after death, it is impossible to draw a distinction; it will possess all the characters of a wound inflicted in the last moments of life. Edward II. was destroyed by the burn caused by a red-hot poker thrust into the rectum. I heard a rumour that a gentleman was destroyed by pouring melted lead into the rectum by means of a funnel. One of the murderers confessed this horrible crime after acquittal, while under the influence of intoxication.

Much stress has been laid on the presence of blood-stains upon clothes, and deadly weapons found upon or near the deceased, or in the possession of the accused; but we must be fully convinced of their existence before we give a positive opinion. Evidence upon this point has too often proved fatal to innocent persons. When such stains are sworn to, the prisoner usually ascribes them to the blood of animals, or to effusion of blood from the nose, an accidental wound or an ulcer; but other facts generally disprove his assertions.

Can we distinguish by dissection whether death is the effect of homicide or suicide? A careful examination of the situation of a wound may perhaps enable us to determine this question in the affirmative. If, for example, a fatal, incised, or punctured wound, exists on the back of the head or chest, if the hand or hands of the deceased are also wounded, it is evident resistance had been made, and murder generally proved, though there may be some exceptions. In general, a suicide inflicts wounds on the anterior surfaces of the face, chest, and abdomen, and almost always in an oblique direction from right to left; those made by an assassin are from left to right: but though this difference is conclusive with some jurists, I think it far from being positive or satisfactory. I shall allude to this question hereafter. A case is recorded of a man who was found dead, but the course of the ball with which he was shot was from below upwards, so that the muzzle was not presented in the usual way, and the death was considered accidental.

Foderè is of opinion that the expression of the physiognomy of the suicide is more tranquil than that of the victim of homicide; but this distinction is far too nice to be depended upon.

Before we arrive at a final conclusion, we must consider the age, physical and moral constitution, the season and constitution of the atmosphere, &c. In most cases, suicide is very rarely committed before puberty, generally from the age of twenty to fifty, and rarely after this period. It is said, that persons of a sanguine temperament commit suicide in a moment of passion, and the melancholic after long deliberation. It is proved by late writers, that this dreadful act is not so much influenced by climate as was formerly imagined, and that it is as common in Paris as in London. The human frailties and passions are to be found in all nations; and hence we observe, that the hope to serve a country, parent or friend, the respect for religion, for the laws, the belief in a certain religion, political dogmata, philosophical principles, prejudices, usages, pain, moral or physical, chagrin, weariness of life, impotence, delirium of passions, acute diseases and mania, are the motives and causes of suicide in all civilized countries.

Reflection has convinced me, that the moral as well as the physical defects of the human family throughout the face of the globe are not so very dissimilar, as national jealousy had at one time determined.

Dr. Powell, who was secretary to the commissioners for licensing lunatic asylums, published an account of the number of lunatics from 1775 to 1809 inclusive, in which he concluded the malady was on the increase in this country. This conclusion is disputed by Dr. Good, who says, "calculating with Dr. Powell, that the number of lunatic paupers, and those received into public hospitals, which, under the act of parliament are not cognizable by the commissioners, together with those neglected to be returned, compared with the returns entered in the commissioners' books, bear the proportion of three to two, which is probably far above the mark, still the aggregate number of insane persons for the year 1800, contrasted with the general census for the same year, will only hold a ratio of about 1 to 7300; while if we take, with Dr.

Burrows, the proportion of suicides committed in foreign capitals as a test of the extent to which insanity is prevalent in the same towns, which is nevertheless a loose mode of reckoning, though it is not easy to obtain a better, we have reason to conclude, that insanity is comparatively far less frequent among ourselves than in most parts of the continent: the suicides of Paris, Berlin, and Copenhagen, as drawn from tables collected by Dr. Burrows for this purpose, being, in proportion to the relative population of London, as five to two for the first, five to three for the second, and three to one for the third."

Sir Andrew Halliday maintains, that the number of the insane in England has been tripled during the last twenty years.—*Letters to Lord Robert Seymour*, 1829.

CHAPTER VIII.

OBSERVATIONS ON HOMICIDE BY ASPHYXIA.

Asphyxia is the suspension of respiration by a mechanical obstacle to the passage of the atmospheric air into the lungs, caused by submersion or drowning, strangulation, suffocation; by gases unfit for allowing the necessary oxygenation of the blood in the lungs, or hæmatose, such as hydrogen, nitrogen, carbonic acid; or deleterious gases, as the carbonic oxide gas, sulphuretted hydrogen, nitrous acid gas, sulphurous acid gas, ammoniacal gas, chlorine, &c. Asphyxia may be momentary, and respiration may be restored; but when it is prolonged for a very short time it is generally fatal. Various injuries and diseases may produce it, as division of the spinal marrow, formation of false membrane in the larynx or trachea, syncope, &c.; but with these causes the medical jurist can have no concern. I shall therefore describe those which claim his attention.*

Asphyxia by submersion.—The cause of death in all forms of asphyxia, is a want of oxygenation or hæmatose of the blood. This fluid passes through the lungs without any change, it possesses the characters of venous blood, and is unfit for sustaining life; the brain suspends its action, the muscles lose their nervous supply and cease to contract, the chest becomes immoveable, the blood accumulates in the lungs, and as the arterial is more contractile and elastic than the venous system, the trunks of the latter become distended, as also the right cavities of the heart, and pulmonary artery, while the left cavities and aorta contain little blood, or are empty, and the fluidity of the blood is characteristic, though sometimes white fibrous clots are observed in the heart. In some cases, apoplexy or syncope may occur from fear at the moment of submersion, and death will not be caused by want of respiration, but in general asphyxia is the cause of death, whether by deprivation of air or by passage of water into the bronchiæ.

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* For a full account of asphyxia the reader should consult Dr. Roget's article on the subject in the Cyclopædia of Practical Medicine.

It is universally known that the function of respiration cannot be suspended for many minutes without death ensuing. Innervation, or the function of the brain and nervous system, requires, as do all other functions in the body, that the blood should be arterialized, oxygenated or reddened, in the lungs. Thus it has been proved, that, if venous blood be injected into the brain of an animal, a powerful sedative impression is produced, and asphyxia and death very speedily follow. Bichat was the first who proved this fact by experiment. He injected venous blood into the carotid artery of an animal, and so soon as it had reached the brain death ensued. Numerous other experimenters attest the same fact. (See Essay on Poisons by Morgan and Addison, 1829.)

The inference to be deduced from it is most important, which is this, that in every instance of suspended respiration, however induced, the asphyxia which follows is caused by the impression of venous or unvitalized dark blood upon the brain.

It was formerly supposed that asphyxia caused by drowning was induced by the presence of water in the lungs and stomach; but the cause of death by drowning, as in all forms of asphyxia, is the paralysis of the brain and nervous system, from the unaltered venous blood in the head.*

Dr. Cullen, in his letter to Lord Cathcart, observed, that "water very often does not enter into the lungs, nor even the stomach, in any quantity to do hurt to the system; and, in general it is known that, in most cases, no hurt is done to the organization of the vital parts; it is therefore probable, that the death which ensues by drowning is owing to the stoppage of respiration, and to the ceasing in consequence of the circulation of the blood, whereby the body loses its heat, and with that the activity of the vital principle."

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* De Hean thought that the water in the lungs stopped the circulation of the blood in the arteries; and so late as 1809 Larrey was of this opinion. Dr. Goodwyn disproved this conclusion. He poured two ounces of water through an opening in the trachea of a cat into the lungs; there was sudden difficulty of breathing and feebleness of pulse, but the animal lived several hours afterwards without much apparent inconvenience. It was then strangled, and the exact quantity of water found in the lungs.

The following are the phenomena of drowning in a small animal, according to Sir B. Brodie, whose views are quoted from an unpublished manuscript, by Dr. Paris:—

"If a small animal be immersed in water, contained in a transparent glass vessel, the phenomena of drowning are readily discernible; there is first a deep expiration, by which bubbles of air are expelled from the lungs; there is then an effort to inspire, but the effort is ineffectual, there being no air which can be received into the lungs, and a spasm of the muscles of the glottis seems to forbid the admission of any considerable quantity of water into the trachea. The attempts to breathe are repeated several times, and at each attempt at expiration a small proportion of air is expelled from the mouth and nostrils, until the air-cells of the lungs are almost emptied; then the animal becomes insensible, and convulsive action of the voluntary muscles mark the instant when the brain begins to suffer from the influx of the dark-coloured venous blood. After the cessation of these convulsive actions, the animal becomes motionless, and gives no sign of life; but if the hand be applied to the thorax, the action of the heart, gradually becoming fainter and fainter, indicates that some remains of vitality still linger in the system. Before the circulation of the blood altogether ceases, the muscles of respiration once more resume their actions, and ineffectual efforts are made to breathe. It is a remarkable circumstance, that the diaphragm continues to exert itself nearly as long as the heart itself, and that the interval between the cessation of the motions of the diaphragm and that of the motions of the heart, which is so short in animals that die by strangulation, is still shorter in those who perish by drowning. These phenomena follow each other in rapid succession, and the whole scene is closed, and the living animal is converted into a lifeless corpse, incapable of recovery, in the brief space of a few moments. (Brodie's manuscript Notes.) If, however, the animal be taken out of the water before the total extinction of life, and the diaphragm contract afterwards, so as to draw air into the lungs before the action of the heart has ceased, the circulation is maintained, and the animal continues to respire; he will thus have escaped immediate death from suffocation; but his life still remains in jeopardy, for there is a second period of danger, and one at which death may take place, when we are the least prepared to expect it; for the dark-coloured blood which has been transmitted through the circulatory system, during the suspension of respiration, would seem to act like a narcotic poison upon the brain; no sooner therefore does it enter that organ, but deleterious effects are produced, the animal at first falls into a state of stupor, the pupils of the eyes become dilated, the respiration laborious, the muscles of the body convulsed, and the animal dies, poisoned by its own blood."

Dr. Thomson gives the following graphic description of the phenomena attending the act of drowning of a healthy individual in the possession of all his faculties, who accidentally falls into deep water, and the appearances presented by the body after death:—

"If the fall have been from an height, the body is precipitated to the bottom of the water, when it is not of profound depth; but it quickly rises to the surface, partly from the natural gravity of the body, whilst the lungs are full of air, being less than that of the water, partly from much air collected and retained in the clothes. But if the person be not able to swim, and greatly agitated, he screams; by which effort the chest is partly emptied of the air it contained, and the body once more sinks to the bottom, but again rises; and this occurs several successive times. Whenever the mouth happens to be above the surface of the water, the necessity for fresh air in the lungs, instinctively leads to a hurried gasp to obtain it: but, frequently, water is gulped down with the air, which exciting a cough, the air is ejected as well as the water, and the body again sinks. Repeated efforts of this kind, and vain struggles for safety are made, every time the body rises; but, as the air in the lungs becomes more and more tainted, at each successive submersion, and, at the same time, the efforts made to avert the impending fate, determining the blood to the head, and this being unaltered or venous, asphyxia supervenes; consciousness and volition having then ceased, the body sinks motionless to the bottom of the water, the weight of which, pressing on the thorax, forces out a portion of the air remaining in the lungs; and a few air-bubbles, gurgling to the surface, afford to those present the evidence that the last vain effort is over. In accounting for these phenomena, it is evident that the frequent risings to the surface depend, in a great measure, on the struggles which are instinctively made to fill the lungs; and the subsequent sinkings, to the air thrown out from the lungs, owing to the various efforts to inspire taking water in with the air, and this exciting coughing. As the air within the lungs diminishes, the blood becomes more and more venous; the skin changes to blue, particularly about the mouth; the pulse becomes weaker, and ceases; muscular energy is gone; and, like an inanimate substance, the body falls motionless and without sensation. The more the individual struggles, the sooner he dies, and the less chance of resuscitation exists: for it is the muscular motion which expends the oxygen; a fact which is proved by the effect produced on persons who have fainted, and in that state have been submerged in water; for in this case a much longer period of submersion can be sustained without destroying the chance of resuscitation. Foderè relates a case from Plater, of a young woman who was condemned to be drowned as a punishment for the crime of infanticide, and who fainted at the moment she was plunged into the water. She remained a quarter of an hour under it, and, nevertheless, recovered on being drawn out. This may also explain some of the extraordinary instances of recovery recorded in the reports of the Humane Society. One person is said to have recovered after having been three quarters of an hour under the water.

" Now, if the body has been drowned while living, what appearance does it exhibit when taken out of the water?

" The whole body is cold and pallid; the face especially; the eyes are half open, and the pupils much dilated; the mouth and the nostrils contain a good deal of frothy fluid; the tongue is protruded between the teeth, and approaches to the under edge of the lips. It is said that the countenance, instead of being pale, is sometimes red and bloated, and presents all the symptoms of death from ordinary apoplexy; but I have never seen an instance of this condition, although I have seen the head much swelled. This swelling and lividness are generally present, when persons have fallen into the water in a state of intoxication. In addition to these external appearances, the ends of the fingers are seen to be excoriated, and the presence of dirt or sand is visible under the nails; but this can only happen when the water is not very deep, and when efforts to save himself from death are made by the drowning person on touching the ground: if the water be deep, however, the body never reaches the ground till all power of struggling is over; and a drunken man who falls into the water may expire without a struggle or an effort to save himself; thence this last sign cannot always be expected to be present."

The appearances which the body that has been drowned presents, if immediately opened, are the following:—

1. On opening the head, the brain displays a darker colour than usual: but the vessels are not always turgid with blood: extravasation has never been observed in cases of simple drowning.

2. There is an unusual accumulation of black blood in the pulmonary arteries and veins, and in the right auricle and ventricle; whilst the left ventricle is only half filled with the same kind of blood—sometimes completely empty. The trunks and smaller branches of the arteries proceeding from the left ventricle are also filled with black blood.

3. Some water, mixed with frothy matter, and occasionally coloured with blood, is found in the trachea; but the quantity varies much in different instances. Much useless controversy took place upon this subject, until the experiments of Dr. Goodwyn set the question at rest. By drowning animals in a coloured liquid, he found that the quantity of fluid which enters the lungs was too small to cause death; for, although water injected into the trachea in moderate quantity causes some difficulty of breathing, and a feeble pulse, yet it is quickly absorbed, and does not cause death.

It is curious that so late as 1809, Larrey should have attributed the cause of death in drowning to the introduction of water into the bronchiæ; and deduced this conclusion from anatomical examination of the bodies of persons who had been drowned. I may only repeat, that the question is now set at complete rest; unless the body have remained long in the water, scarcely any water is found in the bronchiæ; and, consequently, much of that which is found passes in after death. As to the quantity, this depends on the fact whether the last effort of the lungs of the person who falls into the water be one of *expiration* or *inspiration ;* for, if it be the former, no water will reach the trachea. The frothy mucus in the trachea, however, is not peculiar to drowning :—you will recollect, that I mentioned it as one of the signs not unfrequently present in cases of hanging : and we shall afterwards find, that it is also present in cases of death from irrespirable gases. The frothy mucus, nevertheless, is a sign of some importance; for if the body be thrown into the water after death, unless the death of the person has been effected by strangulation or hanging, no frothy mucus is found in the lungs; and water entering the trachea of a dead person can never so mix with the air as to form a frothy mucus.

4. The diaphragm is said by some to be depressed into the abdomen, which would not *a priori* be expected. The experiments of Sir B. Brodie have proved, that the diaphragm exerts itself nearly as long as the heart itself, and that the interval between the cessation of the movements of the diaphragm, and that of the movements of the heart, is even shorter in animals that are drowning, than in those of the throes of strangulation; thence, the last efforts of life being those which aim at respiration, this position might be arrested as it were at the moment of death: but the fact is generally the reverse; and as the last efforts are those of collapse of the lungs, the diaphragm rises high into the thorax.

5. Little or no water is found in the stomach; and when it is present, it can in no way have contributed to death : and there is even less chance of water being found in this organ, if the body have been thrown into the water after death. This fact, and that of little or no water entering the lungs, cannot be too widely propagated, as the popular prejudice is in favour of the opposite opinion, and bodies taken out of the water are still rolled on barrels and held up by the heels in

in order to dislodge it: a practice fraught with the greatest danger, if the smallest chance of resuscitation continue.*

A vast deal of controversy has ensued on the subject of the presence of water in the lungs and stomach. It was found, that no water entered the organs of a corpse immersed in that fluid, and it was inferred that an individual, whose body contains it, must have been plunged into the water during life. This is correct as a general proposition, but it is liable to exception. Thus, a person may be so plunged at once under the water as to be suffocated without rising to the surface, and when asphyxia happens, the power of deglutition is at an end, or a person may faint, as in the case related by Foderè from Plater.† As long as there is any strength, the epiglottis, or valve of the windpipe, will resist the passage of the water, except in small quantity, which will be taken in during inspiration, mixed with the pulmonary mucus, and produce the frothy appearance.

De Hean and Marc have observed this sign after hanging, and it often exists in those who die from apoplexy, epilepsy, violent catarrhal and bronchial affections, and from irrespirable gases. It is also a fact, that putrefaction soon causes a frothy fluid strongly resembling that in question. It should be borne in mind, that the absence of frothy mucus is not a conclusive proof that the body was dead before submersion. The buoyancy of the body is another point which has occasioned much discussion, and is thus described by Dr. Paris.

" The buoyancy of the human body is another point in the history of drowning, which has occasioned much discussion; and, in solving the problem, so highly important in its forensic relations, whether a body found in the water, had been drowned, or thrown in after death, it has been considered by some physiologists as capable of affording a certain degree of presumptive evidence, although we are inclined to attach but little or no importance to such an indication. The specific gravity of the human body, under ordinary circumstances, is very little greater than that of fresh water, so small indeed is the difference, that when the lungs are inflated, a man will float with little or no effort, if he have sufficient self-possession, and does not attempt to raise too great a portion of his body out of the sustaining fluid; but, when the air of the lungs is expelled, and probably, at the same time, a certain quantity of water is taken into the stomach, the body becomes specifically heavier, and the victim sinks. It may be assumed, as a general rule, that no newly-drowned body floats, although many facts have been adduced in support of a contrary opinion; the naval custom of loading the dead bodies with weights, before they are consigned to a watery grave, is not for the purpose of sinking the corpse, but for preventing its rising after the process of putrefaction has commenced. The period during which a body will remain at the bottom cannot be very accurately determined, as the change does not take place until a sufficient quantity of air be generated to buoy it again to the surface. In the melancholy instance of the loss of the Royal George, the dead bodies were observed ascending to the surface of the sea, on or about the fifth day. The general position of a body which has thus risen, provided there be no external or adventitious circumstances to change it, is such, that it floats nearly immersed, the face, arms, and legs hanging downwards, and the loins being uppermost; this is the form which the body must mechanically and hydrostatically assume, if the sustaining power of generated air be, as it generally will, in the cavity of the abdomen, where putrefaction is more likely to commence; for the head and limbs are generally specifically heavier than water, while the trunk, especially if inflated with air, is somewhat lighter.

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* Lectures on Medical Jurisprudence, in Dr. Ryan's London Medical and Surgical Journal, 1835, vol. vii.

† Foderè is of opinion, that water may enter the lungs and stomach after death upon hydrostatic principles. It cannot, however, form the frothy appearance

"It has been said that a position, different from that which we have just described, will take place where the person has been strangled, and the body then thrown into the water; for in this latter case, it is contended, that the lungs will be distended with air, and that, consequently, the sustaining power must be in the thorax. In support of this opinion the story of the appearance of Caraccioli, Admiral of the Neapolitan navy, has been ingeniously adduced; this unfortunate man was hanged in pursuance of the sentence of a court-martial, and his body was committed to the deep in the usual manner; thirteen days after which, while the King of Sicily was walking on the deck of Lord Nelson's ship, he suddenly exclaimed with a yell of horror—"*Vien! Viene!*"—The Admiral's corpse, breast high, was seen floating towards the ship; the shot that had been attached to the feet, for the purpose of sinking it, not being sufficiently heavy. This may perhaps be explained by supposing that the corpse was stiff before it was immersed, in which case, the centre of gravity being exceedingly low on account of the shot tied to the feet, he must have floated upright, wherever the buoyant power from generated air might be situated. At all events, we feel no hesitation in at once rejecting the proposition, for the support of which it has been brought forward; the fact is, that, in relation to gaseous contents, the lungs are the same in strangled as in drowned persons, for in both cases a quantity of air is forcibly expelled from them before dissolution."

The opinion in the last sentence is directly opposed to the phenomena connected with strangulation, and I totally dissent from it. Dr. Thomson likewise arrives at my conclusion.

"In those destroyed by submersion, the face is red and tumid, the pupil dilated, the eyelids partly open, the eyes glassy, the tongue projected beyond the lips, a frothy fluid escapes from the mouth and nostrils, the skin of the trunk and extremities is remarkably pale; the trachea, and sometimes the bronchi contain an aqueous sanguinolent froth, according to Louis, Goodwyn, Berger, Orfila, and others, and this is formed during life (Piorry), as it cannot be produced by immersion of a dead body; and is only a secondary cause of death, according to Orfila. The chest and epigastrium are swelled, the fingers are deprived of skin, there is often earth under the nails, varying according to the soil of a bank near the water, the brain is engorged, the epiglottis is straitened, the lungs are dilated and crepitant, containing a certain quantity of froth."

All these signs however, are not conclusive. Thus the pale colour of the skin might occur if a person, destroyed by severe hæmorrhage or inanition, was precipitated into the water. The colour and tumidity of the face will not be present, should the submersion be effected rapidly, and have caused syncopal asphyxia, or anger or drunkenness might nduce it.

The external appearances of the body will vary according to the length of time they have been in the water; so that the indications afforded by them are illusory. The frothy matter may be seen in apoplexy, convulsions, epilepsy, in certain cases of poisoning, and after strangulation or putrefaction. The states of the eye and eyelids are equivocal. The distention of the right side of the heart will be present in all cases in which the circulation of the blood is suddenly suspended. The fluidity of the blood is observed in scurvy, in those destroyed by electricity, and in many species of cachexiæ. The engorgement of the brain is still more uncertain, and may arise from a variety of causes.* The condition of the lungs and elevation of the thorax arise from various causes. The presence of water, or any other fluid in which the body has been found, in the stomach, is a strong proof; as such fluid does not enter the organ, unless the body is in the erect position when immersed, and a body might be injected with water or fluid after death.

The clothes may be torn by the individual throwing himself on stumps of trees, or rugged rocks, which may also produce bruises or wounds. An intoxicated person may fall into the water, and in such cases, the nails will be free from dirt or sand, or excoriations. It is the received opinion, at present, that no decisive evidence can be given, whether or not a body was dead before it was immersed in water.

It is extremely difficult to determine, whether drowning be homicidial, suicidal, or accidental. All circumstantial evidence must be carefully estimated as well as the morbid appearances.

Dr. Gordon Smith mentions the case of a man who had leaped with impunity from each of the bridges into the Thames. He proposed to attempt this feat again, for a wager, but was drowned; and when the body was found, both arms were dislocated. It was observed, that on all former occasions, he kept his arms, either close to his body, or perpendicular above his head; but on the last occasion he went down with them in a horizontal position, and both were dislocated.

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* De Hean and Morgagni state that they always found the cerebral vessels empty.

Dr. Thomson relates two singular cases of drowning, which are worthy of attention.

"It might be supposed that a body found drowned, with the hands and feet tied together, may confidently be regarded as a case of murder; but two cases at least are recorded, which display the impropriety of such an opinion being hastily delivered. One was the case of a guaging-instrument maker, who had been missing for some days, about the end of June, 1826. His body was discovered floating down the Thames; and when taken out, the wrists were found tied together and fastened to the knees, which were in like manner secured to each other. The cord employed for this purpose was proved to have been one that had hung from the top of his bedstead; and which, when he was ill some weeks before he drowned himself, he had employed in raising himself up in bed. He was a good swimmer, and it was supposed that he had tied himself in this manner, before precipitating himself into the water, to prevent himself from swimming. There was sufficient evidence of this man's insanity, but none that he had thus tied himself; yet, on the presumption which I have stated, the coroner's jury properly, in my opinion, returned a verdict, 'found drowned.' In the second case, the evidence was still more conclusive than in the former. The man was reduced to great pecuniary distress. One day he took an affectionate farewell of his family, declaring that he would not return until he had procured some employment. On the following day he was taken out of the New River, with his hands and legs tied together. In his pocket was found a card of his address, and three-pence in money. He had five-pence when he left home, and it was supposed that he had expended the other two-pence in the purchase of the cord with which he was tied."

Considering all signs, we can seldom decide indubitably that the person perished by submersion. It is also impossible to decide whether the person has fallen into the water by accident, or has thrown himself in, or is the victim of homicide. Here we must recollect, that persons intent on suicide have wounded themselves without causing death, and then thrown themselves into the water. We should inquire whether the deceased was short-sighted, affected with vertigo or insanity, and examine the state of the bank, marks of footsteps, and various other circumstances. When there is ecchymosis on the neck or wrists, or traces of poisoning, we may suspect assassination; and in the former we must be careful in distinguishing ecchymoses from cadaverous lividity, in the manner already described in treating of wounds. We can generally distinguish wounds inflicted before and after death, though a person may fall against a stone and receive a wound in the water, which can scarcely be distinguished from one inflicted before immersion. When new-born infants are drowned, we must determine whether they were born alive or not, by the proofs stated in the article on INFANTICIDE.

Means of restoring suspended animation from drowning.—It is a great error to turn the head downwards for the purpose of allowing the water to flow from the stomach and lungs, as these organs contain little or none of that fluid. The body should never be suspended by the feet. In all cases, the head and shoulders ought to be raised while the body is being conveyed to the nearest house. It is a bad practice to roll it on casks, or to rub it all over with salt or spirits. The body ought to be stripped, dried, wrapt in hot blankets, and placed in a warm bed. The natural heat may be restored by rubbing the spine and pit of the stomach with warm flannels; and applying bottles of warm water or hot bricks to the pit of the stomach, along the spine, and to the legs. It is highly useful to place the body in a warm bath, or at a proper distance from the fire, or in the sun; and employ frictions, with hot flannels, mustard, oil of turpentine, ammoniated liniment, and other stimulants, over the face, spine, and pit of the stomach.

Asphyxia by strangulation, suspension, or hanging, is effected by mechanical pressure on the neck by a cord, cravat, or any other means, which prevents the passage of the air into the lungs, and thus causes asphyxia. In suspension or hanging, there is strangulation, and often dislocation of the upper cervical vertebræ, causing pressure on the spinal marrow, paralysis of the respiratory nerves, paralysis of the thorax, and instant death. Laceration of the vertebral ligaments, dislocation or fracture of the vertebræ is caused by the modern mode of hanging, as the body is precipitated, and its weight produces these effects. Are there certain signs indicative of death by strangulation? Can we distinguish when suspension is made before or after death, or whether strangulation be voluntary or criminal?

The signs laid down by writers that strangulation has caused death are the following: the skin of the neck on which the cord has been applied is of a yellowish black colour, is dry, and resembles parchment. These effects however are found when strangulation has been produced before or soon after death; the existence of ecchymosis is very rare in general where there is no effusion of blood in the subcutaneous cellular tissue. (Esquirol. Arch. de Med, 1823). When real ecchymosis is observed, the strangulation was produced during life. On the other hand, strangulation may be caused, and this sign be absent, or it may be deep-seated in the muscles. Its absence on the skin is no proof that death has not been caused by this means. There is an apoplectic condition of the brain indicated by tumefaction and great redness of the face and lips, by the swelling of the eyelids, and lividity or blue colour, by the redness and prominence of the eyes, which appear as if starting from the sockets; there is the livid engorgement of the tongue, which is thickened and projected between the teeth; there is a sanguinolent froth in the throat, mouth, and nostrils; the lungs and right cavities of the heart are gorged with black blood, the left cavities being empty; the extremities are violet, the fingers contracted, there is erection of the penis, and seminal emission, or the latter without the former; and the menstrual evacuation in women occasionally occurs. The lividity of the face and congestion of the brain may exist, but disappear before the autopsy, or may be produced some hours after death, but not after twenty hours (Esquirol): a vertical position will cause them to disappear, or a declivity of the head of a dead body will produce them.

The signs afforded by the eyes, eyelids, and tongue, are of little value. The presence of froth in the air passages, the conditions of the lungs and heart, are seen in all species of asphyxia, and are of course inconclusive. The erection and seminal emission may not happen. The luxation and fracture of the vertebræ may occur before or after death, and unless accompanied by ecchymosis, superficial or deep-seated are equivocal:* there may be effusion of blood into the vertebral column.

Upon the whole, when strangulation or suspension causes death, there may be ecchymosis without any sign of putrefaction, and the certainty is complete if there is lividity of the face, froth in the air passages, and the clothes stained by a recent seminal or menstrual evacuation. But should all these signs be absent, there is no just ground for denying that strangulation has happened. To decide that strangulation has happened after death, we must find wounds, fractures, contusions of the cranium, or of other important organs or traces of poison in the intestinal canal: where none of these signs is present, we must conclude that strangulation was caused during life. Devaux met with a case in which there was no sign of strangulation, except discoloration of the face, which fact led him to examine the body closely, when he discovered a small penetrating wound of the heart, which might have been overlooked upon a superficial examination.

It is difficult to decide between suicide and homicide. A person may wound himself if he swings himself among surrounding bodies. When blood is observed upon the individual, we may in general decide it a case of suicide; but homicide may occur under such circumstances. In real strangulation, we have grounds for supposing it homicide, for an individual who intends to destroy himself in this way, generally, but not always, wants the power to effect his wicked purpose. Such persons usually tighten the ligature by some instrument, as a piece of iron or wood. Desgranges and

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* Dr. Fletcher, of Edinburgh, proved that an ignorant man, who pretended to be a surgeon, fractured the neck by allowing the head to hang over the edge of a table, while he divided the diseased vertebræ, and established that the injury was caused after death. The prisoner was acquitted.

Dunlop record cases in proof. The marks on the neck and other parts of the body are tested as in cases of those caused by hanging.

It is equally difficult to distinguish suicide from homicide in the case of suspension. Fracture or dislocation of the cervical vertebræ may occur in voluntary, as well as criminal suspension. Orfila, Chaussier, Pfeffer, Ansiaux, and others, however, conclude that, in general, such lesions of the vertebral column are not the result of suicide. In all these cases, we should consider, the habitude, morality, and intellectual state of the individual, but it is foreign to my purpose to introduce in this place all the causes of suicide.

It is obvious that all the blood-vessels and nerves of the neck must be strongly compressed in hanging; and that the external and internal appearances of apoplexy will be discovered on the autopsy. The countenance is red or livid, the eyes are red and prominent, and a frothy sanguinolent mucus issues from the mouth and nostrils. On opening the head the brain is generally congested, and blood is extravasated between its membranes.

The compression of the trachea first causes a suspension of respiration, while that of the blood vessels and nerves speedily suspend it.

Examples are recorded of both sexes, who, to excite the venereal appetite, allowed themselves to be suspended for some time; and some of them lost their lives in not having been taken down before asphyxia occurred. The right cavities of the heart are gorged with blood while the left are nearly empty. The pulmonary cells are distended, and the lungs do not collapse when the chest is opened. The blood is fluid, and flows on each incision with the scalpel. The face is sometimes pale, though generally red or livid—the shoulders are raised, from the strong efforts made to inspire, before asphyxia supervenes, there is sometimes ecchymosis upon them, the fingers are bent, the hands generally clenched, and the nails blue.

The symptoms attending hanging have been described by those who have been imperfectly hanged, and afterwards recovered. It appears, that the sensation at first experienced, is that of passing into a profound sleep.

Wepfer relates the cases of a man and woman who survived hanging, and who mentioned the above sensation. Lord Bacon mentions a similar case of a gentleman, who fancied to ascertain the sensations of hanging, on himself, and who would have lost his life, if a friend had not cut him down.

Dr. Derham, in his Physico-Theology, relates two remarkable instances of recovery from hanging. The first he quotes from Pechlin, De Aere et Alim. Defect., was that of a woman who was hanged, and to all appearances was dead. Nevertheless, she was restored by a physician, who accidentally saw the body, and ordered a free use of the spirit of sal ammoniac. The second case was seen by Dr. Derham himself. Ann Green was hanged at Oxford, December 14, 1650, for half an hour, some of her friends thumping her on the breast, others hanging with all their weight upon her legs; sometimes lifting her up, and then pulling her down with a sudden jerk; thereby the sooner to despatch her out of pain, as the printed account of her informs us. After she was in her coffin, being observed to breathe, a lusty fellow stamped, with all his force, upon her breast and stomach, to put her out of pain; but by the assistance of Dr. Petty, Dr. Willis, Dr. Bathurst, and Dr. Clarke, she was again brought to life. I myself saw her many years after, between which time and the date of her execution, she had, as I am informed, borne several children."

Another instance of recovery after hanging, was that of John Smith, who was executed at Tyburn on December 24th, 1705. He was cut down in fifteen minutes, in consequence of the arrival of a reprieve, and recovered by venesection.

I was informed, by a gentleman in Tipperary, that about fifty years ago, a man named Slattery, was hanged for robbery at Clonmell. He was cut down in fifteen or twenty minutes, and the body delivered to his friends. Medical aid was procured, and he recovered. On returning home, the day of his execution and recovery, he attacked a widow, with intent to rob her. He was taken, reconveyed to Clonmell, brought before the same judge who had ordered him to be executed, tried, convicted, and executed, the body having been suspended for an hour.

In 1786, a man was sentenced to be hanged at Clonmell for rape, committed on a woman who resided in or near Nenagh, in the county of Tipperary. He was recovered, and was seen by a gentleman who related the case to me. On his return home, he again violated the same woman, for which he was re-tried, convicted, and hanged, until dead, at the ensuing assizes in the same town. I have been informed, that at this period there were no drops to the provincial prisons in Ireland, and that criminals were placed on carts, ladders, &c. as already stated.

A woman who was hanged at Edinburgh, in 1828, revived at Pepper Mill, after she had been bled.

Governor Wall was long in dying by hanging, in consequence of ossification of the trachea, which resisted the rope.

In the foregoing and other cases of recovery after hanging, the spinal marrow was not injured, or the neck fractured or dislocated, and it is to be presumed that in such cases, the ladder, cart, or platform, on which the culprit stood, while the rope placed round his neck, was withdrawn from under him, and that there was less probability of injury of the spine than when the body is precipitated from the "drop," or modern apparatus for hanging.

The celebrated Louis inquired of several executioners in Paris, how they saved the lives of some persons, while others were irrecoverably dead? They replied, that they caused in the latter a laceration of the trachea, luxation of the first vertebra from the second, by placing the knot of the cord under the ear, and then giving a rotatory motion to the body at the moment when the ladder was taken from under the feet. This luxation chiefly occurs in heavy persons, or in those who have fallen from a height upon the end of the rope, or when attempts are made to hasten death by increasing the weight of the body.

Experiments have been made on the lower animals, and even on man, with a view to preserve life in hanging. Dr. James Gregory opened the windpipe of a dog, then passed a cord round its neck, suspended it, and observed that it continued to respire and live; but when the cord was placed below the opening it quickly perished. Sir B. Brodie hanged a dog, and as soon as it became insensible, he opened the trachea below the ligature, upon which the animal breathed, and its sensibility returned.

It is stated by Professor Richardson, that a surgeon in the Austrian army, saved the life of a criminal by performing the operation of laryngotomy, a short time previous to his execution. A similar experiment was tried on one Gordon, a butcher, who was executed at the Old Bailey, in the early part of the last century. The body having hung the usual time, it was removed to a neighbouring house, where a surgeon was in attendance to receive it, who used every means likely to restore animation; the deceased opened his eyes and sighed, but soon expired. The failure was attributed to his great weight; but it is not stated whether the bones of the neck were dislocated or fractured.

I may observe, for the benefit of my junior readers, that the *treatment* for the recovery of persons found hanging or strangled, is nearly similar to that for the resuscitation of the drowned; and consists in bleeding from the jugular vein or arm, cupping on the nape of the neck, with a view to relieve the loaded vessels of the brain, and in frictions with stimulating liniments on the face, spine, and chest, with artificial respiration. (See directions of the Humane Society hereafter).

The breathing is to be re-established, by introducing the extremity of the pipe of a common bellows into one nostril, the other and the mouth being carefully closed, and pressure being made on the windpipe against the neck. The lungs may be inflated; and when the chest rises, the nostril and mouth are to be opened, and the air allowed to escape. This artificial respiration ought to be continued for two or three hours, in fact, until the signs of death appear, as stiffness of the limbs, dimness and glassiness of the eyes, &c. The carbonate of ammonia or sal volatile may be frequently applied to the nostrils. If any signs of animation return, a vein ought to be opened in the arm, and small quantities of wine or diluted spirit may be administered, by means of a stomach tube, if the power of swallowing is destroyed.

The medical witness may be called upon to state, 1. Whether a person was hanged while alive, or after death? 2. Whether the hanging was an act of suicide or murder? and, 3. Whether a dead body, found unsuspended, was killed by hanging?

In reply to the first question, was the person alive when hung?—it may be stated, that if the individual was alive when hung, the mark of the rope round the neck will present a deep livid or ecchymosed circle; but when the body is suspended after death, the discolouration of the neck is comparatively slight, and the difference between ecchymosis and cadaveric lividity will be apparent. It is also to be remembered, that if the body is cut down quickly, for example, in fifteen or twenty minutes, when the hanging has been by simple suspension, the rope-mark will be very slight for six or eight hours; but when the body cools, it will present a brownish colour, which deepens until it assumes that as if the skin had been scorched. In a case of this kind, an insane person hung himself in the garden of the hospital of Salpetrière, in Paris. The body was quickly cut down, the cellular tissue of the neck was compressed by the rope, and presented a white band, a line and a half in width. (Esquirol Arch. Gen. de Med. Juin 1823). The celebrated narrator of this case remarks, that if reliance was placed on the marks made by rope in cases of hanging during life, as stated in works on medical jurisprudence, the preceding case, had it been examined within the first six hours after the body was cut down, would have been attributed to suspension after death. The rope-mark, or ecchymosis, will be more apparent when the body is left suspended until it has cooled. The same signs as in the case of the insane individual now mentioned, have been subsequently observed in a woman, who was executed a short time afterwards, with the exception of the white band round the neck. It has happened that a person was first strangled, and suspended after death. In such cases there will be marks made by the fingers, or two distinct circles made by the cord, or other means passed round the neck. In hanging during life, the mark of the rope is at the upper part of the neck; but suicides sometimes place the cord twice round the neck, and in such cases there may be two distinct marks. These marks would be probably connected, but in the former case, the marks of strangulation and suspension will be distinct, and one will be higher than the other. There can be little ecchymosis when the body is suspended after death, but when there are appearances of resistance, the clothes torn, the hair dishevelled, with other marks of violence, the inference is, that murder has been committed. Moreover, when the body is suspended after death, when there has not been strangulation, the morbid appearances of the lungs, heart, blood-vessels, and brain, will be absent. When the rope-mark is at the bottom of the neck, it may be supposed that the person had been strangled, for if hung the cord-mark would be at the upper part of the neck. In some cases strangulation has been effected even in adults, but especially in infants, by compressing the windpipe between the fingers and thumb, or by pressing it against the neck.

In reply to the second question, whether the individual had hung himself, or had been hung by others?—it may be stated, that great resistance would be made by one who was forcibly suspended. In such cases there would be bruises, wounds, or marks of violence, and such are generally deemed proofs of homicide, but there are exceptions. Thus a person, who hangs himself, may swing his body with violence against articles of furniture, and receive bruises or wounds; or the rope may break after he has received them, and they will have all the appearances characteristic of those inflicted during life. Dr. Male mentions a case in point. A boy, who suspended himself, struck his temple against the corner of a box, and was cut to the bone. He was found suspended and dead, with all the signs which follow hanging. Ballard relates a case of a young clergyman, who first cut his throat and afterwards hanged himself; and a gentleman now attending my lectures treated a similar case. De Hean records a case of a young man, who inflicted several wounds on his face before he suspended himself. Belloc knew instances of the suicide having thrown himself from a height, in which the vertebræ of the neck might be dislocated or fractured. Gordon Smith gives the particulars of a case of a man, aged 75, who destroyed himself at Castle Cary, by fixing a cord round his neck while sitting on the bed-side, and then leaning forward until he accomplished his purpose. His wife was in the room at the time, and knew nothing of the transaction. The situation of the body, the position of surrounding objects, the state of the clothes, the appearances of the external surface of the body, the state of the mind of the deceased, his previous history, situation in life, adversity, &c., all deserve especial attention before we arrive at a conclusion.

Those who hang themselves seldom apply the rope so tightly as to completely prevent ingress of air into the lungs. The death is more protracted; the cheeks, lips, eyes, and tongue, are more swollen; the lungs are less gorged with blood, and contain less gaseous matter. The apoplectic appearances in the brain are more marked, on account of the slowness of the death. Dr. Goodwyn found in the lungs of criminals who were hanged, 250 cubic inches of air, a quantity not found in suspension by suicide. The average quantity in the lungs after natural death is 109 cubic inches.

The following cases deserve the careful consideration of medical practitioners, which I condense from Dr. Beck's work:

A young man, aged eighteen years, was found hanging from a tree. His father, aged fifty-two, had married a second wife, and both were on bad terms with the deceased, and threats of murder were made between them. A surgeon swore deceased was strangled; the mark of the cord was at the lower part of the neck above the shoulders, and the teeth were knocked in and bloody. The parliament decided that the father had strangled him, and had put his foot on the mouth of his son, either to prevent his cries, or to hurry on strangulation. He was suspended after death. Foderè and Beck agree, that the son had been strangled before he was suspended, and that the strangling had been done, not by himself, but by others.

Marc Antoine Calas was the son of John Calas, a merchant of Toulouse, aged seventy years, of great probity, and a protestant. This son was twenty-eight years of age, of a robust habit, but melancholy turn of mind. He was student of law, and becoming irritated at the difficulties he experienced, (in consequence of not being a catholic,) concerning his license, he resolved to hang himself. This he executed, by fastening the cord to a billet of wood, placed on the folding doors which led from his father's shop to his store-room. Two hours after, he was found lifeless. The parents, unfortunately, removed the cord from the body, and never exhibited it to show in what manner his death was accomplished. No examination was made—the people, stimulated by religious prejudice, carried the body to the town-house, where it was the next day examined by two medical men, who, without viewing the cord, or the place where the death had been consummated, declared that he had been strangled. On the strength of this, the father was condemned by the parliament of Toulouse, in 1761, to be broken on the wheel. He expired with protestations to heaven of his innocence.

Reflection, however, returned when it was too late. It was recollected, that the son had been of a melancholy turn of mind—that no noise had been heard in the house while the deed was doing—that his clothes were not in the least ruffled—that a single mark only was found from the cord, and which indicated suspension by suicide—and in addition to these, that the dress proper for the dead was found lying on the counter. Voltaire espoused the cause of the injured family, and attracted the eyes of all Europe to this judicial murder. The cause was carried up to the council of state, who, on the 9th of May, 1765, reversed the decree of the parliament, and vindicated the memory of John Calas.*

Dr. Thomson relates the case of a sailor who was found hanging from the top of a bedstead, in a house of ill-fame in East Smithfield. It was proved at the trial, that his hands were tied behind his back, a handkerchief drawn over his eyes; and that this was fastened with a sailor's knot. It was, therefore, evident that he could not have hung himself, and that a sailor was concerned in the murder. The keeper of the brothel was a sailor; and he and a woman named Hughes were tried, convicted, and executed for the murder.

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* Foderè, vol. iii. p. 167, from the *Causes Célèbres.* See also Grimme's Historical and Literary Mem., &c. (1753 to 1769,) vol. ii. p. 41, 117, and 166.

In reply to the third question, whether a body not found hanging was killed by hanging?—we have to distinguish between the causes and signs of sudden death, as by apoplexy, smothering, drowning, and death induced by non-respirable gases. It is possible, that all the external signs caused by hanging during life may be absent; but the internal signs in the head and chest will be present. We should therefore compare the morbid appearances induced by all the above causes of death, which are fully described in this work. The appearances in apoplexy are confined to the head; and the congestion of the lungs and right cavities will be absent. In smothering or burking, the same appearances as in hanging will be present; but, if the deceased has struggled much, the vessels of the brain will be congested, the sinuses distended with blood, and a section of the substance of the organ will present an unusual number of red points; and, in some cases, there will be effusion of serum into the ventricles, and on the base of the brain. In this case, when the rope mark is absent, it will be extremely difficult to arrive at a correct conclusion. But, when no struggle has taken place, the vessels of the brain will be natural, and the diagnosis is easily drawn. Thus in burking, the pressure on the chest, by forcing nearly the whole of the air out of the lungs, so quickly arrests the circulation, that no time is allowed for venous congestion; and, consequently, there is no discolouration of the skin.

In drowning, the state of the brain is quite different from that produced by hanging; the face is pale, there is a frothy mucus in the trachea, bronchiæ, and sometimes in the air vesicles of the lungs; and also some water is found in the lungs or stomach, which is never seen in the bodies of those who have been drowned while living, until after several days.

In poisoning by carbonic acid, there may be cerebral and pulmonary congestion; but, in many instances, there is no rigidity of the body.

In hanging, the signs have been already enumerated, and may be briefly recapitulated.

1. The mark of the cord or other ligature, is seen at first, in six or eight hours after death.

2. The distortion, and redness or lividity of the features, and the elevation of the shoulders, are also present.

3. The fingers are bent, the nails blue, and the hands clenched.

4. There are erection, or semi-erection of the penis, with the emission of semen, and in some women of the menses, and in both sexes the expulsion of the fæces and urine.

5. The morbid appearance of the lungs, heart, and brain, already described.

Such are generally the effects of hanging, and the appearances on dissection of the body; but as I have already observed, some of them may be absent in certain cases.

Asphyxia by suffocation.—Suffocation is different from strangulation, it being produced by the introduction of some foreign body into the throat, or larynx and pharynx, which prevents respiration. Infants, and adults when intoxicated, are often smothered, the former by what is called overlaying, as when the bolster or bed-clothes press on the mouth, and obstruct respiration. A drunken man may fall with his face downwards in mud or soft earth, and being unable to move, he may die from smothering. He may also die in bed, when the clothes cover his mouth and nostrils, and prevent the passage of the air into the lungs.

New-born infants are often destroyed in this manner, and also by the introduction of various foreign bodies, as cotton, tow, earth, sand, wood, &c., which will be found in the pharynx; but these may also be introduced after death. When hard bodies are used, they will produce ecchymosis, excoriations and lacerations. In these cases, death is caused by the prevention of the circulation through the lungs, these organs will be found gorged with blood, or contain some frothy mucosity; the brain will be congested; but these morbid conditions may be produced in the different species of asphyxia, and consequently afford no conclusive evidence. We must attend to the circumstantial evidence, which is the principal or only means to assist us in forming an opinion.

Burking and Bishoping.—We find other modes of effecting suffocation recorded in the recent annals of crime. Thus, the infamous Burke and Hare, the Edinburgh murderers, destroyed their victims by firmly closing the mouth and nostrils, whilst the motion of the ribs was prevented by an atrocious accomplice sitting or kneeling on the chest.

Bishop and Williams, the London murderers, first made their victims drunk, or stupified them, by mixing laudanum in their drink, and when stupified, putting the body, head foremost, into a well, the lower half and legs being upwards, and secured with a rope to an adjoining paling. In cases of this kind, and in smothering from intoxication, there may not be any marks of violence on the body; and no evidence can be deduced by dissection, except that suffocation has been the cause of death. On opening the chest, the lungs do not collapse, they are gorged with black blood, and the right side of the heart is also filled with blood. Such are the appearances, whether death be caused by suffocation, from criminal violence, or by intoxication. It is also to be remembered, that robbery and murder have been committed on a man who was first intoxicated, and then suffocated. It is, therefore, clear, from the preceding statements, that as the morbid appearances are the same after suffocation by intoxication or by violence, the decision as to whether death was accidental or intentional, must chiefly rest on circumstantial evidence.

Death from Intoxication.—It is often difficult to distinguish between the symptoms of apoplexy from those consequent on excessive intoxication. The smell of the breath, and the fact, that the drunken man may be roused by speaking sharply or loudly to him, when he mumbles a few words, and again falls asleep, may afford a diagnosis.

The effects of a copious libation of ardent spirits, are stupor, loss of reason, sensation, motion, the action of the heart and lungs is impeded, the pulse is slow or irregular, there is great determination of blood to the head, and the person either dies apoplectic, or from the sedative effect produced on the stomach. Death is suddenly caused in the last way, when it occurs as soon as a large quantity of spirits is swallowed.

The first effects of drinking large quantities of spirits are stimulant, the action of the heart is increased, the pulse becomes rapid, and there is a great determination of blood to the head. These conditions are rapidly followed by the sedative effects, loss of reason, stupor, loss of motion and of sensation.

The action of ardent spirits on the stomach causes the sedative effects which are rapidly transmitted to the brain through the nerves of that part—the eighth pair. The consequence is, that innervation may be partially or completely suspended, respiration and circulation cease, and death speedily follow. The sensibility of the stomach will, in common with that of all other parts, become diminished, and it is, for this reason, that violent emetics often fail to act.

The degree of danger is to be estimated by the irritability of the iris; if contracted permanently and disobedient to light, the prognosis is unfavourable, but if affected by light, recovery may be expected.

The insensibility of the stomach is also an unfavourable symptom. In *treating* individuals labouring under the influence of intoxication, the stomach-pump ought to be introduced, when the power of deglutition is lost, with a view of diluting and evacuating the contents of the stomach. But if the power of deglutition remains, an emetic of ipecacuanha, tartarized antimony, or sulphate of zinc, may be passed through the tube. In diluting the liquor in the stomach, a solution of Epsom salts may be injected, and if this do not act on the bowels, purgative clysters ought to be employed.

When the symptoms of coma or apoplexy continue, it will be necessary to bleed the patient from the arm, jugular vein, or temporal artery; and to employ all means necessary for apoplexy. In such cases, the head and shoulders ought to be raised, all articles of dress which are tightly applied, are to be removed or loosened, as the cravat, the waistcoat, waistband of the lower dress, &c.; and the same stimulating frictions applied as for resuscitating drowned persons. Habitual drunkenness has been cured by secretly mixing a proper quantity of tartarized antimony in every kind of liquor which the person intended to use.

Death from Lightning.—Persons may be destroyed suddenly by electricity, without the clothes or body being scorched, though these are in many instances. The animal body rapidly runs into putrefaction, the blood remains fluid, and the skin is discoloured in streaks, especially along the spine. It is said, that the body remains flaccid, though others maintain that it becomes rigid. Persons destroyed by electricity are usually found in an open place, or near a tree; and any metal about them may be melted, and the clothes scorched. Circumstantial evidence will be required in most cases of this description; and all the signs of hanging, strangling, drowning, &c. ought to be carefully estimated.

Asphyxia by non-respirable gases.—Some of these gases are non-respirable, and possess a direct deleterious influence on man, and destroy life by causing a defect of oxygen, producing the same morbid appearances as result from asphyxia by want of air: these are nitrogen, hydrogen, protoxide of nitrogen, carbonic acid, carbonated hydrogen, oxide of carbon, poisoning by charcoal. These and the following gases must be included in the second species, called deleterious gases; sulphuretted hydrogen, nitrous acid gas, the gas evolved in privies, ammoniacal gas, chlorine and hydrochloric acid gas. Many of these are only to be encountered in the chemical laboratory. Professor Christison divides gases into irritants and narcotics. The irritant gases are nitric oxide gas and nitrous vapour, muriatic acid gas, chlorine, ammonia, sulphurous acid, and others of little consequence; the narcotic are sulphuretted hydrogen, carburetted hydrogen, carbonic acid, carbonic oxide, nitrous oxide and cyanogen.

Nitrogen gas.—This gas is found in cellars, in which substances are placed which have a strong affinity for oxygen, as oils, &c., and attract it from the air, and sometimes in privies.

The signs of asphyxia from this cause, are pallidity or a greenish cast of skin, extreme anxiety, large and frequent respiration, and death occurs in a few minutes without any lesions of the nervous system. The arterial system is full of black blood. The effects of hydrogen gas are nearly similar, and can only be produced by chemical experiments.

Asphyxia by carbonic acid gas occurs from the combustion of charcoal, common fuel, or in cellars, from fermentation of wine or malt; and from lime-kilns, from coal-pits, mines, marshes, and draw-wells. Brewers' men are often destroyed by this gas, when they descend into large vats for the purpose of cleaning them, unless they use proper precaution. It is usual to lower a lighted candle into the vat, which will be extinguished as soon as it encounters the acid, which, from its greater gravity than atmospheric air, falls to the bottom of the vessel. I have been called to two persons who were destroyed by inattention to this precaution. The effects of the non-respirable gases are similar to those arising from want of renewal of air. This was well exemplified during our East Indian wars, by the horrible incarceration of our countrymen, by their savage opponents at Calcutta.

On this occasion, in 1756, one hundred and forty-six Englishmen were confined at Fort-William, in a place eighteen feet by fourteen, from eight o'clock in the evening until next morning, when only twenty-three individuals were alive. An instance somewhat similar occurred in London, in 1742. Twenty persons were confined in St. Martin's Round-house during the night, and several of them were found dead next morning. The medical witnesses proved, that when the doors and windows were closed, twenty persons could not be confined in the place without danger to their lives. A number of persons in an apartment will so vitiate the air by the evolution of carbonic acid during respiration, as to render it unwholesome, and more or less poisonous. If moisture is present during the burning of charcoal, hydrocarbonous gas is evolved, which is highly fatal to life. Sir H. Davy was nearly destroyed by breathing it three times.

On the 12th of May, 1650, some forge-men were drinking at Leipsic, who amused themselves by passing an imperfectly extinguished candle several times under the nose of a child twelve years old, who was sleeping in the apartment. They continued this cruelty for half an hour. The child awoke, and again fell asleep; but in three days afterwards, it was seized with convulsions or epileptic fits, and died. The faculty decided, that the fumes of the candle were similar to the vapours of charcoal or lime, and were capable of producing the same results. Valentini's Pandects, vol. I.

The first effect on the unfortunate persons at Calcutta was abundant and continued perspiration, insupportable thirst, succeeded by great pain in the chest, and a difficulty of respiration, amounting to suffocation. They were attacked with fever, which increased every moment, and after four hours most of them were dead. Many became stupid, lethargic and delirious, and only twenty-three escaped alive. In those destroyed by want of air, the right cavities of the heart, and the venous system, are filled with very black blood.

The symptoms produced by *carbonic acid, or fumes of charcoal*, are heaviness of the head, intense headache, which impels the sufferer to compress the temples, cerebral congestion increases, and causes vertigo, drowsiness or profound sleep, tingling of the ears, impeded respiration and circulation, dazzling, the muscular power ceases, profound coma ensues, and death seems apparent. During the development of these symptoms, some persons experience a general feeling of pleasure, and the excretions are discharged involuntarily. In these cases, the body remains warm and flexible for a long time; the extremities flexible, the muscles are softened, the colour of the surface is congested, pale, leaden, or violet, the face is red or flushed, the jaws are firmly closed, the lips of a vermillion hue, or dark livid colour, the eyes are bright, and continue so for two or three hours, the tongue is swelled, the epiglottis is raised, the veins of the brain and lungs are congested with very black blood, which is accumulated in the right side of the heart, and the veins connected with it, there are effusions into the ventricles of the brain, and air vesicles of the lungs, while the muscles are easily torn, and more so than in drowning, hanging, &c.* The stomach and intestines are red and inflated, the mucous surfaces are ecchymosed, the blood remains fluid, and all the lesions characteristic of asphyxia, are apparent. It is not as yet determined whether this gas is deleterious, or acts negatively, by causing asphyxia; Dr. Christison thinks it positively poisonous; but it has been injected into the veins and produced slight effects, such as feeble muscular action, which disappeared spontaneously in a few days. (Vysten.)

Asphyxia by deleterious gases. Sulphuretted hydrogen is known by its odour, which resembles that of rotten eggs, and causes a black precipitate in solutions of lead, copper, bismuth, silver, &c. A small quantity of it causes death, and even serious accidents when mixed with atmospheric air. It is disengaged from the putrefaction of animal and vegetable substances, from privies, and sewers. Its effects are great prostration of muscular power, oppression of the chest, with difficulty of respiration, headache, nausea, and marks of oppression of the nervous system, and probably a change in the blood.

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* Portal Med. Com. v. 3. Belloc, Babington, Med. Chir. Trans. v. 1. Orfila, v. 2. Larrey, v. 2, &c.

After the death, the mucous membranes of the nose and bronchiæ are lined with a thick bluish mucosity, the blood vessels are filled with a blood of a similar colour; a colour which is observed in the brain, lungs, kidneys, and all organs and vessels. The muscles have lost their contractility, all the soft parts are easily lacerable, exhaling a fetid odour, and speedily becoming putrefied.

Asphyxia, produced by gas evolved in privies and drains. This is the hydro-sulphate of ammonia, or sulphuretted hydrogen, mixed with a great quantity of air; is composed of twenty-four parts in one hundred of nitrogen, one or two of oxygen, four of carbonic acid and subcarbonate of ammonia. It is designated *plomb*, by the French jurists, and arises from *privies* of a peculiar form, such as those of Paris.

The symptoms produced by this poison, are headache, nausea, paleness of the face, dilatation of the pupil, a frothy sanguinolent fluid in the mouth, constriction of the throat, sardonic laugh, violent cries, convulsions of the muscles of the chest and jaws, sometimes tetanic spasms, articular pains, coldness of the skin, irregular and embarrassed respiration. At other times, there is stupor, the visage is violet, the eyes glisten, the pulse is small and frequent, the breathing convulsive, the extremities are relaxed. At the approach of death, all the symptoms are aggravated, the sufferer roars loudly, and the body is bent backwards, as in opisthotonos.

The morbid appearances are similar to those produced by sulphuretted hydrogen, or hydro-sulphuric acid gas. This gas was said to be the cause of the fatal cholera at Clapham, which is denied by Christison.

Asphyxia, by sulphurous acid gas, nitrous, hydrochloric, *ammoniacal, arsenical gases, hydrogen, carburetted hydrogen or fire damp, muriatic gas, and chlorine.*—All these gases are irritant, inducing cough, suffocation, vivid pains in the chest, sometimes hæmoptysis, and always mucosities in the bronchiæ. They act negatively, or by a defect of oxygen. When death approaches, there is hiccup, râle, great pain in the diaphragm, convulsive motions, delirium, and inexpressible agony. The cause of death is irritation of the mucous membrane of the bronchiæ. The nitrous oxide or laughing gas, and protoxide of azote, also destroy life in this manner.

There are many other gases which are destructive to life, which I have not described; but these cannot become the subject of forensic investigation, as they produce their effects upon experimentalists, who may avoid them. A full account of them will be found in Dr. Christison's elaborate Treatise on Toxicology, a work which ought to be in the hands of every medical practitioner. Vegetable emanations may produce syncope or asphyxia, either by the extrication of carbonic acid, or by the odour of their flowers, which can only be accounted for by peculiarity of constitution or idiosyncrasy. The descriptions of these cases cannot be of interest to the medical jurist.

Treatment of Asphyxia, recommended by the Humane Society.

Cautions.—1. Lose no time; 2. Avoid all rough usage; 3. Never hold the body up by the feet; 4. Nor roll the body on casks; 5. Nor rub the body with salt or spirits; 6. Nor inject tobacco smoke, or infusion of tobacco.

Restorative Means.—*If apparently drowned*, send quickly for medical assistance, but do not delay the following means:—1. Convey the body carefully, with the head and shoulders supported in a raised position, to the nearest house; 2. Strip the body, and rub it dry; then wrap it in hot blankets, and place it in a warm bed in a warm chamber; 3. Wipe and cleanse the mouth and nostrils; 4. In order to restore the natural warmth of the body,

1. Move a heated covered warming-pan over the back and spine; 2. Put bladders or bottles of hot water, or heated

bricks, to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet; 3. Foment the body with hot flannels; but if possible—4. Immerse the body in a warm bath, as hot as the hand can bear without pain, and this is preferable to the other means for restoring warmth; 5. Rub the body briskly with the hand; do not, however, suspend the use of the other means at the same time.

5. In order to restore breathing, introduce the pipe of a common bellows (where the apparatus of the society is not at hand) into one nostril, carefully closing the other and the mouth; at the same time drawing downwards, and pushing gently backwards the upper part of the wind-pipe, to allow a more free admission of the air; blow the bellows gently, in order to inflate the lungs, till the breast be a little raised; the mouth and nostrils should then be set free, and a moderate pressure made with the hand upon the chest. Repeat this process till life appears. 6. Electricity to be employed early by a medical assistant. 7. Inject into the stomach, by means of an elastic tube and syringe, half a pint of warm brandy and water, or wine and water. 8. Apply sal volatile or hartshorn to the nostrils.

If apparently dead from intense Cold.—Rub the body with snow, ice, or cold water. Restore warmth by slow degrees; and after some time, if necessary, employ the same means recommended for the drowned. In these accidents it is highly dangerous to apply heat too early.

If apparently dead from Hanging.—In addition to the means recommended for the drowned, bleeding should early be employed by a medical assistant. See HANGING.

If apparently dead from Noxious Vapours, &c.—1. Remove the body into a cool fresh air; 2. Dash cold water frequently on the face, neck, and breast; 3. If the body be cold, apply warmth, as recommended for the drowned; 4. Use the means recommended for inflating the lungs in Direction 5; 5. Let electricity (particularly in accidents from lightning) be early employed by a medical assistant.

If apparently dead from Intoxication—Lay the body on a bed, with the head raised; remove the neck-cloth, and loosen the clothes. Obtain, instantly, medical assistance, as the treatment must be regulated by the state of the patient: but in the mean time, apply cloths soaked in cold water to the head, and bottles of hot water or hot bricks, to the calves of the legs, and to the feet.

If apparently dead from Apoplexy.—The patient should be placed in a cool air, and the clothes loosened, particularly about the neck and breast. Bleeding must be early employed by a medical assistant; the quantity regulated by the state of the pulse. Cloths soaked in cold water, spirits, or vinegar and water, should be kept applied to the head, which should be instantly shaved. All stimulants should be avoided. In cases of coup-de-soleil, or sun stroke, the same means to be used as in apoplexy.

Homicide by combustion.—The medical jurist is seldom called on to pronounce an opinion on a body destroyed by combustion, as murder is seldom perpetrated by burning. The records of legal medicine afford but few illustrations of homicide by combustion. When such cases occur, medical evidence may be required, as stated in the remarks upon burns or torrefaction. It is now admitted on the continent of Europe, though disbelieved in these countries, that spontaneous combustion is possible, though its cause is as yet inexplicable. (On the combustion of the human body, produced by long and immoderate use of spirituous liquors, Phil. Trans. v. xliii, lxiv. Foderè, v. iii.) It is said to occur most commonly to aged females, who have long indulged in the abuse of alcoholic potations. Generally speaking, some matter of ignition, as a lighted candle, a pipe, &c. has been found near the remains of the body; but cases are attested in which no igneous substances were discovered. Lecat, Copp, and Marc, refer to the fact of spontaneous combustion having on the surface of the earth, and as friction on the extremities of certain persons elicits electric sparks, why should not these excite inflammation or ignition of the alcoholic fluid, or of a gas contained in the cellular substance of our organs?

Dr. Dods gave the following opinion before the Parliamentary Committee in 1834; "What condition of the body tends to such a fatal issue, or how the various fluids and solids of the human body acquire a chemical constitution fitted for such a phenomenon, it is difficult to explain; but it is well known, that alcohol contains in itself all the elements of olefiant gas, with oxygen and hydrogen in excess, and by persisting in the habitual use of alcohol, it is not improbable, that after a while, its elements might assume that combination which would give rise to such a catastrophe."

In spontaneous combustion, the flame is said to be like that of certain meteors, and is extinguished with difficulty. The walls of the chamber in which this happens are covered with an unctious fetid humidity, such as results from the combustion of hydrogen gas. It rarely happens but that some of the bones of the limbs remain, but the trunk is consumed, probably as it is connected with the large cavities, and on account of the laxity of the cellular tissue, and the evolution of hydrogen gas in the intestines. When the individual does not perish at the instant of the accident, sphacelus sets in or commences rapidly after death. If life remains for four or five days, an insupportable odour is exhaled, the nails are detached, and worms are generated. These characters cannot be confounded with accidental combustion, or burns; in these the redness of the blisters and the eschars leave no doubt on the nature of appearances, and accidental combustion seldom destroys the whole body without extending to surrounding objects: some medical jurists admit the possibility of spontaneous combustion. The reader will find references in the works of Beck, G. Smith, Briand, Sedillot, and others.

Death by Inanition or Hunger.—It seldom happens that homicide is committed in this manner, though it is well known that cruel and unnatural parents, step-fathers and step-mothers occasionally destroy children and young persons by famine or starvation. The ancient and modern history of Ireland affords ample evidence of the destruction of life by this cause. Besides, persons may be found dead, when it will be important to inquire whether life has been extinguished by cold, hunger, poison, &c. It is therefore necessary to state what are the signs of death by starvation.—The body is emaciated, the eyes are red and open, the tongue, throat, and buccal mucous membrane, are very dry, the stomach and intestines are very much contracted and empty, there is no feculent matter in the bowels, the gall bladder is full, and bile tinges the stomach and bowels, and all the blood-vessels are empty. Many of these signs are different from those which characterize other causes of violent death.

Dr. Thomson gives the following descriptions of the symptoms of starvation:—

Murder, or suicide, may be the result of starvation, consequently the symptoms of it should be familiar to the medical witness. It is unnecessary to say, that the life of the body cannot long be sustained under privation from food; although the period to which it may be protracted varies considerably, owing to circumstances connected with the age, constitution, and situation of the individuals subjected to it. I will first detail to you the effects of starvation on the living body, antecedent to its termination in death; then the appearances presented by dissection of the body after death; and afterwards point out the causes which modify the results of either a forced or voluntary privation of food; and the difficulty of determining between starvation, from a mere examination of the symptoms, and some states of disease.

The first visible effect of starvation is emaciation and debility; but these do not display themselves for the three first days. The countenance, however, becomes pale, and the expression languid: the voice fails, the extremities become cold, the pulse sinks, and the muscles lose the power of responding to the will. An icy coldness often spreads over the body, and the pulse ceases to be felt; sleeplessness, palpitations at the heart alternate with headache and syncope; mild delirium supervenes; not unfrequently, however, if the wretched sufferers survive this state, a second series of symptoms present themselves; the pulse again becomes perceptible; palpitation of the heart alternates with syncope; the delirium rises to a degree little short in violence of that which characterizes phrenitis; and the exhaustion consequent upon this flash of apparently reviving power, quickly extinguishes the vital spark in the wasted frame which it had previously almost ceased to animate.

Life, under such circumstances, is scarcely extinct ere a fetid aerial odour exhales from the body; the eyes are red and open, the tongue and throat are dry, as if completely parched up. On opening the head, the brain displays something like increased vascularity; and serous effusions are found in the ventricles and between the membranes. In the thorax, the lungs seem shrunk, and as if withered; in the abdomen, the stomach is often reduced to one-fourth of its natural size, and the intestines are found nearly empty; the gall-bladder is turgid with bile, and the duodenum and small intestines deeply imbued with it; whilst the blood-vessels are contracted, comparatively empty, and the blood nearly devoid of crassamentum. Sometimes the small intestines display marks of inflammation.

The most remarkable effects in the series which I have enumerated, are those displayed in the cerebral organs; and they demonstrate how closely the two extremes of abstinence and of excess resemble one another in their effects on the nervous energy. The symptoms during life, and the post mortem appearances displayed by dissection, leave little difficulty in recognizing this condition, and permitting a decisive opinion to be delivered: at the same time, from its simulation of phrenitis in the adult, and of hydrocephalus in children, care must be taken not to confound them.

In cases of spontaneous starvation, the cerebral symptoms are, in a great measure, absent; the mental stimulus of stern resolution operating upon the brain in a manner sufficient to prevent the development of the delirium. There are few cases of voluntary abstinence on record. In the Journal of Foreign Medicine, No. V. is one described by the suicide himself, who lived eighteen days, and was found still alive, but feeble, speechless, and insensible. He died immediately after having swallowed, with difficulty, the yolk of an egg in broth. In this instance, no cerebral symptoms seem to have displayed themselves. The most striking example of mental resolution warding these off, is in the history of Luc Antoine Viterbi, a Corsican, who was condemned to death as an accomplice in the assassination of Frediani, and voluntarily starved himself. The details are copied from the Corsican Gazette into the London Medical and Physical Journal for March, 1822, and from it into Dr. Paris' work on Medical

Jurisprudence. Viterbi lived twenty days, merely gargling his mouth occasionally. On the 19th day, a slight pain at intervals affected his heart, and for the first time he felt a ringing in his ears; at noon his head became heavy; his sight, however, was perfect, and he conversed as usual, making some signs with his hands. An icy coldness, which had occurred several times before, again assailed his body; the shiverings were frequent and dreadful; and his loins, in particular, were seized with a stone-like coldness, which extended itself down his thighs. On the 20th Viterbi determined no longer to moisten his mouth; and feeling the approach of death, he laid himself out, and added, " I am prepared to leave this world." Death, says the narrator, did not betray his hopes. On the 21st Viterbi was no more.

It is probable that in both these cases, the small quantities of water, which, in Viterbi's case, was taken in the mouth, and in that of the other was applied to the surface, during the eighteen days of fasting (for the suicide was often soaked with rain), certainly tended to protract life. Dr. Paris justly attributes the preservation of Elizabeth Woodcock, who, for the space of eight days, was buried under the snow, near Cambridge, to the fluid which she obtained by occasionally sucking the snow.

Children sooner die from starvation than adults; and in after years, the rapidity of this kind of death is proportioned to the youth and vigour of the body, a fact of some importance to be known, as questions may arise respecting the right of survivorship, in the event of shipwreck, and two or more people being saved on a barren rock, and afterwards dying of famine. In the account of the awful death of Count Ugolino and his sons, given by Dante, the sons perished before the father, who survived till the eighth day of his imprisonment. On the same principles, women are able to bear abstinence longer than men.

It is thus obvious, that the symptoms which mark starvation are sufficiently evident; and it is a melancholy reflection, that many instances of it have been brought to light, as subjects of legal investigation. (1 East, P. C. 226; 1 Leach, C. C. 163; 2 Campbell's Reports, 650).

When a medical man is called to examine a case of this description, the first object in view is to ascertain, whether the starvation be a case of suicide or of murder; and some data have been pointed out in the cases to which I have referred, in which the brain was examined for determining this point. Thus, if the appearances in the brain resemble those of extreme excitement, there is much reason for supposing, that the starvation was involuntary, and, of course, a case of murder; but if no appearances of this description present themselves, we may conclude that it has been an act of suicide.

Before dismissing this subject, it is of importance to point out the management of such cases, when death does not ensue. The first object is to restore, if possible, the animal temperature, which is always alarmingly diminished, before a morsel of food be administered. This should be effected by means of moderately warm flannels, bladders filled with hot water, and such like, applied to the pit of the stomach, whilst, at the same time, assiduous frictions are applied to the surface. Food should then be administered of a fluid kind, and even that which becomes solid in the stomach, such as milk, should be avoided. A little broth, thickened with any farinaceous matter, should be cautiously given at long intervals, and gradually augmented in quantity. Much care is also necessary to remove every source of irritation from the alimentary canal; and, therefore, the bowels should be daily relieved by enemata of barley water. By such a method of proceeding, the tone and powers of the first passages will be gradually restored, and the wretched patient again restored to life, if not to health and vigour of body.—Lectures on Medical Jurisprudence, in Dr. Ryan's Medical and Surgical Journal, 1835, Vol. 7.

The reader will find further directions, as to treatment, in a former page—374.

CHAPTER IX.

HOMICIDE BY POISONING.

Homicide by Poisoning.—The name of poison is given to all substances, which when applied to the organs of the body, cause death. In order to give evidence in cases of poisoning, the medical jurist should be acquainted with the different poisons, their physical and chemical characters, their effects on the animal economy, the means of distinguishing them from all matters with which they may be confounded or obscured, and in their combinations with the various tissues. These studies are indispensable to medical practitioners, so that they may act with honour and conscience in accomplishing the exigencies of science and justice. I shall, therefore, consider the various bearings of this subject as concisely as possible, but yet as comprehensively, as the present state of science permits.

It is scarcely necessary to recommend the study of Dr. Christison's work on *Toxicology*, or the elaborate article on the subject, by Dr. Apjohn, in the *Cyclopædia of Practical Medicine*, in which the inquirer will find the fullest information. I have laid both productions under contribution in arranging the following remarks.

Mode of action of Poison on the Economy.—Every poison possesses peculiar effects upon the body, and is characterized by peculiarities which indicate the species to which it belongs. It may be employed in various ways, by being introduced into the stomach or bowels by the anus, or it may be applied to the mucous surfaces of the various outlets, to the serous and cellular tissues, to the lungs by respiration as in cases of asphyxia, or it may be inserted under the skin by inoculation, or injected into the veins. It is scarcely necessary to mention, that all poisons do not act in the same doses, or through the same tissues. It was long held by physiologists, that poisons were absorbed by the veins or lymphatics; but there is every reason to conclude, that all act through the medium of the nerves, as incontrovertibly proved by Morgan and Addison. —(*Essay on the Actions of Poisons, &c.* 1829.) These experimenters admit with Foderè, Tiedemann, Gmelin, Magendie, Brodie, Wilson Philip, Barry, Laissaigne, and others, that absorption takes place, but that death may be produced by the same poisons solely through the nerves; and that this occurred when they divided all the tissues in a limb, except the nerves. The presence of poisons in the fluids of the body as repeatedly observed in the blood, urine, &c. does not invalidate the opinion, that their fatal results took place through the medium of the nerves of the vessels which contained them. No one has, as yet, refuted this conclusion.

General Indications of the means of detecting poisonous substances.—There is no subject which requires such minute precautions, as the discovery or detection of poisons, from their varied combinations with the fluids and solids of the body. Hence the processes for detecting them are exceedingly numerous. This will appear from a reference to the works of Orfila, Christison, and of other toxicologists. To the first illustrious professor we are indebted for a classification of poisons which is now generally received, and is as follows:—

1. Irritants; 2. narcotics; 3. narcotico-acrids; and, 4. septic or putrefiants. This arrangement is adopted by Christison, and differs from those proposed by Paris and Beck, but in my opinion, is decidedly the best, and I shall adopt it.

Class I. *Irritant Poisons.*—The poisons comprised in this class belong to the three kingdoms of nature. The symptoms produced by irritant poisons, when taken into the stomach, are violent irritation and inflammation in one or more divisions of the alimentary canal.

There is a sense of heat and burning in the tongue, mouth, throat, gullet, and stomach, the pain is acute and extends to the abdomen; it is increased by drinks and the respiratory movements, the heat is acrid and corrosive, the breath is fetid, nausea is often an early symptom, there is vomiting of a tough mucous or of a brown, blackish, sanguinolent matter, or of clots of pure blood, which cause a sense of bitterness and acridity in the mouth; the smallest quantity of drink is rejected, the bowels are sometimes constipated, but generally there are copious fetid and bloody alvine dejections; there is hiccup; the skin is pale, cold, and bedewed with a cold, clammy perspiration; the extremities become cold; painful eruptions appear; the face is pale, or leaden-coloured, affected with convulsive contractions; great prostration of strength occurs; the pulse is small, irregular, and weak; the agony and anxiety are extreme; there is a desire to pass urine, which cannot be gratified; sometimes the intellectual faculties are unimpaired, and the sufferer is conscious of his horrible pains and approaching fate; or the nervous system is stupified, and death occurs without much agony. In some cases the stomach is affected without the mischief extending to the intestinal canal, but generally both are implicated; in bad cases, the whole tube from the mouth to the anus is affected at the same time. In some instances, there is irritation in the windpipe, lungs, and urinary organs.

When poisons are applied externally they cause redness, or blistering, or sloughing, by corroding the tissues chemically, and some of them induce inflammation of the cellular membrane, which may be diffused between the muscles. Others are absorbed, especially if applied to a wound or ulcer, causing lesions of the nervous system, of the lungs, heart, and digestive tube. Hydrophobia, syphilis, small-pox, poisoning by narcotics, are examples of the last mode of action.

Lesions of Tissue. Autopsy.—There will be inflammation of the mucous membrane, of the cheeks, throat, gullet, stomach, and intestinal tube; sometimes there will be only congestion, but generally there will be black spots on the stomach, caused by effusion of blood between its membranes; at other times there will be ramollissement or softening of its mucous, or muscular, or serous tunic, or complete perforation of its three coats. In some cases the small intestines are untouched, while the stomach and large intestines, especially the rectum, are highly inflamed. These phenomena are explained by the rapidity with which the poison passes through this part of the digestive tube, while it is delayed longer in the stomach and rectum. It is to be remembered that the effects of many natural diseases are easily mistaken for those of poisons; and these are distention and rupture of the stomach, inflammations of the stomach and bowels, spontaneous rupture of the stomach and duodenum, bilious vomiting and cholera, effects of drinking cold water, hernia or rupture, melæna, hæmatemesis, colic, iliac passion, and inflammation of the peritoneum. The diagnosis in these cases is often extremely difficult, and in some instances exceedingly doubtful. Distention and rupture of the stomach may be caused by gluttony, and produce sudden death from congestive apoplexy, or from an impression on the stomach itself. The appearances on dissection will, according to Christison, enable us to form a correct conclusion in such cases, and in simple rupture of the organ.

Drinking cold water when the body is over-heated, has caused sudden death from the impression on the nerves of the stomach (Duncan), or from inflammation of the organ, followed by gangrene. (Haller.) Ices or iced water in hot summers, produce similar effects. (Bull. des Sc. Med. v. 6.)

The symptoms of common cholera are exceedingly like those produced by the poisons under notice. In some cases it is impossible to distinguish them. Dr. Christison offers the following diagnosis in cholera:—the sense of acridity in the throat never precedes the vomiting; there is no sanguinolent vomiting, and in this country, " death within three days is very rare indeed." Death from irritant poisons is seldom delayed beyond two days and a half. Dr. Mackintosh and Mr. Tatham have known cholera fatal in a less period than that above mentioned; the latter in twelve hours. Edin. Med. and Surg. Journ. vol. xxviii. Dr. Christison concludes that cholera in this country very rarely proves fatal, as early as irritant poisoning, that is within two days and a half: while Dr. Mackintosh states (in his Practice of Physic,) that several fatal cases within this period have been reported to him. Such were the statements before the epidemic blue cholera of 1832; and referred to common English cholera only.

Idiopathic gastritis may perhaps exist, but inflammation of the stomach is usually caused by poisons, and the burning in the throat, if present at all, does not precede the vomiting. The symptoms and morbid appearances in enteritis and peritonitis are widely different from those induced by poisons.

Spontaneous perforation of the stomach has been often confounded with effects of poisoning; but it occurs after schirrus, simple ulceration, and softening, or ramollissement, or gelatinization. (Christison.) The last form is ascribed by John Hunter and most British pathologists to the gastric fluid after death; but the last author named, as well as Andral (Pathology), questions this conclusion. Mr. Allan Burns however found a perforation in the stomach of a girl who died of diseased mesenteric glands; he sewed up the body, and after two days he discovered another opening. Edin. Med. and Sur. Journ. vol. vi.

It appears from the testimony of Dr. Christison, that perforation of the alimentary canal by worms, colic, melæna, ileus, and obstructed hernia, can scarcely be confounded with effects of poisoning.

Irritant Mineral poisons.—The poisons of this class are sulphuric acid (*vitriolic acid, vitriol, and oil of vitriol,)* nitric acid (*aqua fortis*) hydrochloric acid (muriatic acid, and spirit of salt,) phosphorus, iodine, liquid chlorine, potass with lime, oxalic acid, nitrate of potass, soda, lime, barytes, and liquid ammonia.

Mineral poisons.—It has happened of late years that infants have been destroyed by the barbarous practice of pouring sulphuric acid into the mouth; and the countenance has been disfigured, and vision destroyed by throwing this acid upon the face. The latter crime is now a felony.

When mineral acids (especially the nitric acid) are applied to the skin, they produce irritation, inflammation, and corrosion. They act by the transmission along the nerves of their local impression. The inside of the mouth is generally shrivelled, white, yellow, if from nitric acid; brownish from sulphuric, and often more or less corroded; there is intense burning pain in the throat, œsophagus, and stomach, which is followed by eructations of gases evolved by the chemical decomposition of the coats of the stomach, and the pain is much more intense than in ordinary gastritis.

The matter vomited is brownish, black, or mixed with shreds of membrane, or consists of coagulated mucus; the patient is affected with tenesmus and urgent desire to evacuate his bladder; the breathing is laborious, as the movements of the chest increase the pain of the stomach. The pulse is generally weak, but may be natural; and sometimes there is no uneasiness or torture produced even after a large quantity of the poison. In some cases there is an eruption all over the body. The fatal effect from poisoning by acids occurs between half a day and two or three days, it has happened in two hours, and has been prolonged to fifteen days, The patient may linger for eight months; and there may be imperfect or perfect recovery. Dr. Christison thinks that death may occur from inflammation and spasm of the glottis and larynx without the poison reaching the stomach or even the gullet. In these cases the clothes may present red or yellow spots, when nitric or sulphuric acid has been taken.

Autopsy.—The lips, fingers, and other parts of the skin will be spotted or streaked from disorganization of the cuticle by the acid; these marks are brownish or yellowish brown, and present, after death, the appearance of old parchment, or of a burn, or of vesication. The mucous membrane of the mouth is generally hardened, whitish or yellowish; the pharynx is in the same state or very red, the gullet is often lined with a dense yellow membrane, the subjacent tissue is brown or red. The muscular coat of the mouth, throat, and epiglottis is sometimes exposed, and occasionally the gullet is unaffected, though the mouth and stomach are severely injured; the peritoneum is generally inflamed, but not always. The stomach, if not ruptured, is commonly distended with gases, and contains a quantity of yellowish brown or black matter, and is lined with a thick paste of disorganized tissue, blood, and mucus. The pylorus is contracted, the mucous membrane is not always corroded. When the acid is diluted, the coats of the stomach may escape corrosion; but there will be excessive injection, engorgement and blackness of the mucous membrane with or without softening. Again, there may be perforation of the stomach; the duodenum is affected with the other appearances of the stomach. In the second or chronic variety the stomach and intestines are greatly contracted, the latter to the size of a quill. The pylorus may be so contracted as scarcely to admit a probe. There are red spots on the surface of the stomach, and its coats may be attenuated, especially where adherent to surrounding organs, on separating which, perforations become apparent. When sulphuric or nitric acid is injected into the anus after death, there is no sign of inflammatory redness, the mucous membrane is yellowish and brittle, the muscular and peritoneal coats are white, as if blanched.—(Orfila.) When all the appearances already described exist, Dr. Christison is of opinion that we may conclude without chemical evidence, that poisoning has been caused by mineral acids.

Treatment of Poisoning by the Mineral Acids.—The immediate exhibition of chalk, limestone, old mortar, or magnesia,* or if these cannot be had, of any mild fluid, milk or oleagenous matters, and then a free use of diluents to facilitate vomiting, should be employed. Should inflammation commence, it is to be treated as ordinary gastritis.

Tests for Mineral Acids.—Under this head we shall merely describe the tests which interest the medical jurist, taking it for granted he is informed on the physical and chemical properties of the acids in a pure and diluted state. Thus he has to determine whether sulphuric acid exists in the vomited matter, and when it is supposed to cause stains on the clothes.

Sulphuric Acid.—The process is simple for the detection of the acid in alimentary matter. The suspected matter is to be boiled for a few minutes, and after filtration, sub-carbonate of lime added; the mixture is to be agitated, when sulphate of lime is obtained, which is to be dissolved in boiling water, and tested by a salt of baryta, the product is to be calcined with charcoal, and this gives a sulphur, from which sulphuretted hydrogen will be evolved by a few drops of nitric or hydrochloric acid. (Sedillot, 1830.) Dr. Christison describes this process more minutely after dilution.

When diluted, it is to be tested with litmus and tasted. An acid having thus been proved to be present, a little nitric acid is to be added, and subsequently a solution of the nitrate of baryta. If a heavy white precipitate falls down, it can be nothing else than sulphate of baryta, because no acid but the sulphuric, forms with the barytic salts a white precipitate insoluble in nitric acid. The phosphate and carbonate of baryta are both soluble in nitric acid. In applying this test care must be taken to employ nitric acid entirely free of sulphuric,—an admixture which the common nitric acid of the shops almost always contains.

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* Dr. Apjohn says—that on no account should magnesia usta be employed, as the heat which results from its union with an acid is such as would of itself produce inflammation, and even disorganization of the stomach. *Cyclopædia of Practical Medicine.* Art. *Toxicology.*

The test now mentioned is alone sufficient to indicate the presence of sulphuric acid, combined or uncombined. But as the duty of the medical jurist is to supply not only satisfactory evidence, but also the best evidence which his science affords, it is advisable in a criminal case to establish the nature of the precipitate still farther by the following process:—

"Collect the precipitate on a filter, wash, dry, and remove it. Then mix a little of it (not more than two grains) with a small proportion of dry charcoal powder; and subject the mixture for two or three minutes, in a covered platinum spoon or in a fold of platinum foil, to the flame of a spirit-lamp enlivened with the blow pipe. A portion at least of the sulphate is thus converted into sulphuret of baryta. To prove this, put the powder with a little water in the bottom of a small glass tube, add a little hydrochloric acid, and then hold within the tube, without touching the matter below, a bit of white paper moistened with acetate or nitrate of lead. Sulphuretted hydrogen gas is disengaged, which will darken the paper, and likewise often betray itself by its singular odour."—(Christison.)

This process is to be applied for the detection of stains, the cloth or other solids being boiled, &c.

Nitric Acid.—The process proposed by Christison for detection of nitric acid when mixed with food, consists in neutralizing the acid with potass, evaporating to dryness, and ascertaining by the addition of sulphuric acid and the application of heat, whether nitrous fumes are evolved. Sedillot, who is one of the latest and best French writers, recommends a different plan; namely, saturate the suspected mixture of animal substance and acid, with saturated carbonate of potass, filter and evaporate the fluid, and crystals of nitrate of potass will be obtained. Dr. O'Shaughnessy objects to these tests, and after a satisfactory exposure of their fallacy, proposes an entirely new re-agent, namely, morphine, which, when brought into contact with nitric acid, in the minutest quantity, immediately produces a brilliant vermillion colour. The mode of his experimenting requires attention.

"A capillary tube should be used to absorb the minutest drop of the suspected liquid, which should then be gently expelled on a particle of morphine, placed on a white porcelain surface, when the characteristic tint is instantly produced." (Practical Commentaries on Dr. Christison's Processes for detecting Poisons. Lancet, 1831, vol. I.)

Muriatic or hydrochloric acid, seldom comes under the cognizance of the medical jurist as a poison. No chemical evidence can be valuable when applied to the contents of the stomach; since free acid and muriates have been detected in the secretions of that organ, by Prout, Tiedemann, Gmelin, Graves, &c. This acid is known by its peculiar vapour, and by the white fumes formed by its mixture with ammoniacal gas, on the approach of the open mouths of two bottles containing these substances. The precipitate caused by nitrate of silver is to be filtered, dried, and heated in a tube. "It fuses at the point of redness, is not decomposed at a red heat, and on cooling forms a translucent mass, which cuts like horn." (Christison.)

Dr. O'Shaughnessy objects to the test of ammoniacal gas, as he says it will produce a similar result, though in a less degree, by exposing strong, nitric, sulphuric, or acetic acids to it. He says a portion of the acid should be diluted, and to one part nitrate of silver, and to another nitrate of baryta is to be added: if a precipitate occurs in the former and not in the latter, the evidence of muriatic acid cannot be disputed. The former writer says that a similar precipitate is caused by the same test with many other acids and their salts. Work on Poisons.

Phosphoric Acid.—The plan for detecting this is by evaporating the suspected solution to dryness, saturating with ammonia and precipitating it by hydrochlorate of lime; in treating the phosphate of lime with a little charcoal in a glass tube, phosphorus will be obtained. Poisoning by phosphoric acid is exceedingly rare, and the only case is recorded by

Christison; in which there was no aphrodisiac effect produced.

Liquid Chlorine.—This substance is detected by its green yellow colour, and peculiar odour, which can scarcely be mistaken; it discolours all vegetable substances, evolves gaseous chlorine by elevation of temperature, and with nitrate of silver forms a white curdy precipitate, insoluble in nitric acid and soluble in ammonia.

Iodine.—When urged too far, is a violent poison, as it may accumulate in the system like digitalis, and operate suddenly. The symptoms which follow its inordinate use, are loss of appetite, pain in the stomach, vomiting, purging, rapid and extreme emaciation, absorption of the breasts and testicles, small frequent pulse, great constitutional disturbance, and violent spasms. Orfila found small yellow patches and ulcers on the mucous membrane of the stomach of a dog. In one case there was intense peritonitis, adhesions of the intestines, enlargement and pale rose red colouration of the liver. There was effusion into the peritoneal cavity and chest. (Christison.) Dr. O'S. comments upon this account, and says, "we believe that wherever death occurs later than sixty hours after poisoning by iodine, it will be sought in vain in the alimentary canal, while it may have been readily detected during life in the urine.

"Iodine, when taken into the alimentary canal, remains there but a very short time in a free condition. If the poisoned animal have recently eaten bread, potatoes, or other amylaceous matters, the iodine is almost immediately converted into the iodide of starch, and this again is, by some inexplicable digestive process, transformed into the hydriodic acid. So rapidly do these changes take place, that in one instance in which we administered a drachm of solid iodine to a dog, though vomiting took place in fifteen minutes, yet not a trace of free iodine could be detected by starch in the rejected matters, though hydriodic acid was found in large quantities.

"Again, the hydriodic acid once formed, is rapidly eliminated through the several excretory channels. In forty minutes we have found it in the urine, in which, in the dog just alluded to, it was detected occasionally for five days;

viz., on the first and second, and on the fourth and fifth, when he died. Strange to say, though the same process was performed with every precaution on the third day, it gave no indications whatever of any compound of iodine. We found it, however, in the saliva, which was secreted in immense quantities on that day. After death, not a trace existed in the contents of the alimentary canal. It is also worth recording, that in this instance and four others, no trace of inflammation existed in the intestines, with the exception of a few ulcerations of the glands of Peyer and Brunner; but the air-cells of both lungs were infiltrated with pus, and their substance was preternaturally soft."

In Dr. Christison's observations on iodine as a poison, these facts are entirely omitted as far as the analysis is concerned, and a mode of detecting the hydriodates is proposed, which would inevitably lead to total failure if applied to any complicated mineral fluid, such as the urinary excretion.

He sets out in his chemical examination on the supposition that some combination of iodine has been taken. In order therefore to ascertain whether any *free* iodine is present, the contents of the alimentary canal are triturated with a little cold solution of starch, which would immediately cause the mixture to assume a blue colour. If the blue colour appears, the mixture is, if necessary, diluted with water, and exposed to a current of sulphuretted hydrogen, by which the iodide of starch is decolorised and converted into hydriodic acid. If no blue colour has been produced, the mixture is merely boiled with water and filtered. If the filtered fluid reddens litmus paper, it should be neutralized with caustic potass, and then reacidulated with acetic acid. He next adds the solution of the chloride of platinum, which with the most minute quantities of hydriodic acid, either causes a dark-red precipitate, or changes the fluid to a port-wine colour. It is then to be agitated with an ounce of ether, which dissolves the iodide of platinum, and separates it from the other fluids swimming on their surface, from which it may be removed by a suction tube. The etherial solution is, finally, to be evaporated to dryness, and the iodide of platinum heated by the spirit-lamp flame in a small glass tube, when the iodine is disengaged in its characteristic violet vapour, and condenses on the sides of the tube in dark dendritic crystals.

The above process we have found to be extremely delicate and easy of execution. It is especially applicable to the urine or saliva. Occasionally in the urine, the simple addition of cold solution of starch and sulphuric acid will strike the peculiar blue colour, which may be considered sufficient evidence. This experiment, however, is by no means so delicate as that just detailed, and it is, moreover, exceedingly liable to be interfered with by the animal matters which the urine contains. —*Ut supra.*

Hydriodate of potass is preferred to iodine, as less injurious to the stomach and constitution as a medicine, but as yet no case of poisoning by it has been recorded.

I am in the habit of employing the hydriodates of potass and iron, the iodurate of lead, and the other preparations of iodine, in several cases daily; and have not observed one in which injurious effects were produced. See my Translation of the Practical Formulary of Hospitals, 1835.

Oxalic acid.—This substance, when mixed with lime, gives a white precipitate, which is with difficulty soluble in hydrochloric acid, though very soluble in nitric acid; the oxalate of copper, of a whitish blue colour, is also insoluble in the first named acid. The nitrate of silver causes a white precipitate of oxalate of silver; if dried and heated on the point of a spatula, it burnishes its edges—it fulminates with a white fume.

Dr. Christison's process is as follows:—

"In determining the medico-legal tests for oxalic acid, it will be sufficient to consider it in two states,—dissolved in water, and mixed with the contents of the stomach and intestines, or vomited matter. If the substance submitted to examination is in a solid state, the first step is to convert it into a solution. In the form of solution its nature may be satisfactorily determined by the following process:—The acidity of the fluid is first to be established by its effect on litmus paper. This being done, the re-agents might be applied at once. But it is better to neutralize the acids previously with any alkali, for then they act with greater delicacy. The remainder of the process consequently applies not only to oxalic acid itself, but also to the soluble oxalates, which will presently be proved to be likewise active poisons. The tests are the hydrochlorate (muriate) of lime, sulphate of copper, and nitrate of silver.

"Hydrochlorate of lime causes a white precipitate, the oxalate of lime, which is dissolved on the addition of a drop or two of nitric acid, and is not dissolved when similarly treated with hydrochloric acid, unless the acid is used in very large proportions. The solubility of the oxalate of lime in nitric acid, distinguishes the precipitate from the sulphate of lime, which the present test might throw down from the solutions of the sulphates. The insolubility of the oxalate of lime in hydrochloric acid, on the other hand, distinguishes the precipitate from the tartrate, citrate, carbonate, and phosphate of lime, which the test might throw down from any solution containing a salt of these acids. The last four precipitates are re-dissolved by a drop or two of hydrochloric acid; but the oxalate is not taken up till a larger quantity of that acid is added.

"*Sulphate of copper* causes a bluish-white precipitate, which is not re-dissolved on the addition of a few drops of hydrochloric acid. The precipitate is the oxalate of copper; it is re-dissolved by a large proportion of hydrochloric acid. This test does not precipitate the sulphates, hydrochlorates, nitrates, tartrates, citrates; but with the carbonates and phosphates it forms precipitates, resembling the oxalate of copper. The oxalate, however, is distinguished from the carbonate and phosphate of copper, by not being re-dissolved on the addition of a few drops of hydrochloric acid.

"*Nitrate of silver* causes a dense white precipitate, the oxalate of silver, which, when collected on a filter, dried and heated, becomes brown on the edge, then fulminates faintly, and is dispersed. The object of the supplementary test of fulmination, is to distinguish the oxalate of silver from the numberless other white precipitates, which are thrown down by the nitrate of silver from solutions of other salts. The property of fulmination, which is very characteristic, requires, for security's sake, a word or two of explanation in regard to the effect of heat on the citrate and tartrate of silver. The citrate, when heated, becomes altogether brown, froths up, and then deflagrates, discharging white fumes, and leaving an abundant ash-grey, coarsely fibrous, crumbly residue, which on the further application of heat, becomes pure white, being then pure silver. The citrate also becomes brown and froths up, but does not even deflagrate, white fumes are discharged, and there is left behind a botryoidal mass, which, like the residue from the citrate, becomes pure silver when heated to redness. Another distinction between the oxalate and tartrate is, that the former is permanent at the temperature of ebullition, while the latter becomes brown. The preceding process or combination of tests will be amply sufficient for proving the presence of oxalic acid, free or combined, in any fluid which does not contain animal or vegetable principles.

"Of the modifications which are rendered necessary by the admixture of such principles, none are of any consequence, except those acquired in the case of an analysis of the contents of the alimentary canal or matters of vomiting. Here a word or two must be premised on the changes which the poison may undergo, in consequence of being mingled with other substances in the stomach or intestines. There may either be organic principles contained in the body, or substances introduced into the body as antidotes.

"As to animal principles, Dr. Coindet and I have proved that oxalic acid has not any chemical action with any of the common animal principles, except gelatine, which it rapidly dissolves, and that this solution is a peculiar kind, not being accompanied with any decomposition either of the acid or the gelatine. Consequently oxalic acid, so far as it concerns the tissues of the stomach or its ordinary contents, is not altered in chemical form, and remains soluble in water. In such a solution, however, a variety of soluble principles is contained, which would cause abundant precipitates with two of the tests of the process—sulphate of copper and nitrate of silver; so that the oxalates of these metals could not possibly be exhibited in their characteristic forms. The process for a pure solution, therefore, is inapplicable to the mixtures under consideration; but changes of still greater consequence are effected in the poison by exhibiting antidotes during life. It is now, I believe, generally known, since the researches of Dr. Thomson, and those of Dr. Coindet and myself, that the proper antidotes for oxalic acid are magnesia and chalk. Each of these forms an insoluble oxalate, so that if either had been given in sufficient quantity, no oxalic acid will remain in solution, and the proof of the presence of the poison must be sought for in the solid contents of the stomach, or solid matters of vomiting. The following process for detecting the poison will apply to all the alterations which it may thus have undergone :—

"The first object is to procure a solution. If an antidote has not been given, the contents and tissues, or vomited matter, are to be boiled, distilled water being added if required; the acid is then to be neutralized with potass, and the whole filtered. If magnesia or chalk has been given as an antidote, the insoluble matter is to be separated by filtration, and boiled for twenty minutes in a solution of carbonate of potass, in eighteen or twenty parts of water. A double interchange of elements takes place between a part of the carbonate of potass, and a part of the oxalate of lime or magnesia, and in consequence, some carbonate of lime or magnesia is thrown down, while some oxalate of potass will be found in solution. The fluid after filtration is to be acidulated with pure nitric acid, oxalic acid being now in solution, whatever may have been its original state; the next step is to separate it from the animal and vegetable matter dissolved along with it. I have tried various plans for this purpose, but have found none to answer so well as precipitation with the muriate of lime, so as to procure an oxalate of lime, which, after being well washed, is to be decomposed by boiling it in a solution of carbonate of potass, as before. An oxalate of potass will again be found in solution. The excess of alkali is finally to be neutralized with nitric acid. The fluid is now to be tested with the three re-agents for the pure solution of oxalic acid.

The best *antidotes* for oxalic acid are chalk and carbonate of magnesia, which ought to be administered as soon as possible, both of which have been proved to prevent its injurious action. (Apjohn, *Cyclopædia of Pract. Med.*)

The other vegetable acids, tartaric, citric, malic, and acetic, are seldom or never used as poisons, and consequently do not require further notice.

Fused potass, subcarbonate of potass.—These substances attract moisture from the atmosphere and deliquesce; they turn the syrup of violet green, and litmus paper blue, and are saturated by acids. Watery solutions of them are not decomposed by subcarbonates of soda and ammonia; hydrochlorate of platina causes a yellow precipitate, composed of potass, oxide of platina, and hydrochloric acid.

Nitrate of potass, nitre, saltpetre.—When this substance is thrown on burning fuel, it ignites with a crackling noise. If concentrated sulphuric acid is poured upon this salt, nitric acid vapour is disengaged. The indigo test proposed by Liebeg, is not decisive. Orfila proposed to mix some particles with water and copper filings, and added a few drops of sulphuric acid, when the orange fumes of nitrous acid will be evolved. The morphine test mentioned, when speaking of nitric acid, is the last that has been proposed, and perhaps the most certain.

Soda, lime, and baryta, are seldom, if ever, used as poisons, and need not be further noticed.

Ammonia and its salts are discoverable by a peculiar odour, and by tests known to every medical practitioner.

Preparations of mercury. The oxymuriate of mercury, deutochloride, bichloride, corrosive sublimate, is the commonest preparation of mercury employed as a poison. The mode of detection laid down by Dr. Christison, is considered almost infallible. The suspected substance is to be boiled in distilled water, and a small portion filtered for the trial. On addition of protochloride of tin, a pretty deep ash-grey, or greyish black colour is effected. This preparation of tin is prepared by boiling tin powder in strong muriatic acid, until the metal ceases to be dissolved; the liquid should then be preserved in a closely stoppered bottle. The chemical changes effected in this experiment are as follow:—The protochloride of tin strongly attracts more chlorine, thereby removing one atom of it from the mercury, and reducing the latter to a protochloride (calomel), which is also deprived of its one remaining atom, metallic mercury, being precipitated in the form of a dark minutely divided powder.

Corrosive sublimate, when thrown on burning coals, is volatilised in the form of thick irritating fumes, which tarnish copper. If mixed with potass, in a glass tube, shut at one end, and sublimed, the mercury will appear in the form of globules on the sides of the tube. If a watery solution of the corrosive sublimate is mixed with potass or lime-water, a yellow precipitate occurs, a white one by liquid ammonia, a black one by the soluble hydrosulphates, and, finally, the ferruginous hydrocyanate of potass causes a white deposit, which soon becomes yellow, then more or less blue, from the formation of Prussian blue. If a plate of copper is immersed in a mercurial solution, it becomes covered with a slight coat of the metal; when oxymuriate of mercury is mixed with animal or vegetable substances in solution, and the re-agents produce no effect, ether should be added, the mixture agitated, filtered and distilled with gentle heat, when a residue will be obtained, which, mixed with water, affords a pure concentrated solution. A fourth part of ether should be added, which has the power of abstracting the salt from its aqueous solution. After agitation for a few minutes, and allowed to rest for thirty seconds or more, the etherial solution rises to the surface, and may be removed; it is then to be filtered, evaporated to dryness, and the residue treated with boiling water, which afforded the evidence already mentioned, on being tested with protochloride of tin. This preparation of mercury may be detected in vomited matters, by drying them in a sand-bath, mixing them with a solution of potass in alcohol, and calcining them at a red heat, when the metal will appear in globules in the neck of the tube.

The following mercurial preparations—*the sulphate, subnitrate, red precipitate, acetate, and cyanuret*, when mixed with organic matter, may be decomposed, and the mercury separated by boiling with fused or caustic potass for an hour, an excess of nitric acid is to be added, which precipitates caseous and albuminous matter; filtration is then to be concentrated by evaporation. If a slip of gold, bound round with a harpsicord wire, be plunged into the fluid, an amalgam of gold and mercury will be formed; this is to be scraped off and sublimed in a glass tube, when globules of mercury will appear.

Autopsy—Treatment.—When the corrosive sublimate is applied to a wound or ulcer, it is absorbed, and causes inflammation of the heart, inducing brownish black patches on its internal membrane, as well as on that of the intestinal canal. When taken into the stomach, it produces greyish white patches, which do not result from any other poison. The best antidote is white of egg, which reduces the salt to calomel. The ordinary symptoms of irritant poisoning will be present, and they have been already described. If the nitrate be the poison, the best antidotes are muriate of soda and carbonate of ammonia. The various oxides of mercury are less virulent poisons than the sublimate. The sulphate and cyanuret have induced death, but are seldom employed. Dr. Christison's chapter on poisoning by mercury, and on the effects of that medicine on the body, is one of the best ever written, and ought to be maturely considered by every medical practitioner.

Compounds of arsenic.—Metallic arsenic has an iron-grey colour, is fragile and brilliant, when recently broken. It oxidates in air, water, or alcohol. When exposed to air, it becomes rapidly tarnished, and forms a black powder. It sublimes at 356° Fahr., and in close vessels it condenses unchanged; but in open air it rises in white fumes, with an alliaceous odour, and becomes white oxide, which consists of one atom of metal and two of oxygen, or of thirty-eight parts of the former, and sixteen of the latter. Metallic arsenic has a strong affinity for oxygen, which it rapidly extracts; when two acids are formed, the arsenious and arsenic, the former appears in brilliant octohedral crystals.

The principal compounds which are formed by arsenic, are the arsenious acid, or white oxide of arsenic, the arsenite of copper or mineral green, the arsenite of silver, the arsenite of potass, the arsenic acid, the arseniate of potass, the yellow sulphuret or orpiment, the red sulphuret or realgar, and the impure sulphuret termed king's yellow; there is moreover a black compound termed fly-powder, little known in this country, composed of the metal and arsenious acid.

The arsenious acid, when newly prepared, exists in the form of white, transparent, vitreous lumps, which gradually become opaque by keeping. It is usually sold as a white powder. When heated to 380° Fahr. it is sublimed, and condenses unchanged in minute octahedres. The taste of arsenic has been disputed, but Dr. Christison inclines to the belief that it is entirely insipid, and that the peculiar taste sometimes attributed to it, depends on the irritation which it quickly causes in the part. In this opinion we altogether coincide. The arsenious acid of the shops is soluble in boiling water in the proportion of 115 to 1000 parts, and twenty-nine parts are retained on cooling; temperate water again takes up, in thirty-six hours, 12-5. The solubility of the acid in water is impaired considerably by the presence of various organic materials, such as mucus, albumen, or astringent matter.

The arsenious acid forms salts with the various salifiable bases, of which the most remarkable are the arsenites of silver, copper, lead, lime, potass, and ammonia, all of which may be prepared either by bringing the arsenic acid into direct contact with the base, or by decomposing a salt of the base (such as the muriate of lime, nitrate of silver, acetate of lead, or sulphate of copper), by means of a soluble neutral arsenite. Arsenious acid, added by itself to one of these salts, produces no decomposition, since its affinity for the base is weaker than that of the acid with which the base was previously associated. This fact is of the utmost importance, and deserves to be attentively studied.

" The arsenite of copper is a green compound, formed by adding the arsenite of potass, soda or ammonia, to the sulphate of copper. The arsenite of silver is yellow, and formed with the nitrate of silver in the same way. The arsenite of lead and lime are both white.

" The arsenic acid never comes under the notice of the toxicologist in its free state, but it frequently occurs in combination with potass, as the arsenite of that alkali. This compound is formed by deflagrating arsenious acid with nitrate of potass, by which it obtains another atom of oxygen. Arsenic acid is produced, which unites with part of the potass, forming a neutral salt; the nitrate of silver added to the salt (both in solution) causes the precipitate of a brown-red arseniate of silver.

" Of the sulphurets of arsenic, two only are of toxicological importance, namely, the pure orpiment and the impure king's yellow, the former occurs abundantly as a natural product, and is artificially produced when sulphur is treated with arsenious acid, or when sulphuretted hydrogen is passed through a solution of that substance. Both these sulphurets of arsenic are exceedingly soluble in alkaline solutions." (O'Shaughnessy *Op. supra cit.*)

Treated with potass and charcoal, in the manner hereafter mentioned, metallic arsenic will be produced. Arsenious acid is dissolved in boiling hydrochloric acid, and precipitates on cooling. It is very soluble in water, and an addition of hydrosulphuric acid, which causes a precipitate of yellow sulphur of arsenic, which is entirely soluble in ammonia. The ammoniacal deuto-sulphate of copper, causes a green precipitate. On boiling this acid with potass, a yellow precipitate takes place by nitrate of silver. When white oxide of arsenic is mixed with vegetable and animal matters, the following processes are recommended for its detection:—

A small quantity of these substances is to be boiled for fifteen or twenty minutes, filtered and tested with the various re-agents already mentioned. The hydrosulphuric acid or soluble hydrosulphates, to which a few drops of nitric acid are added, are the best tests, as the yellow sulphate of arsenic is detected with difficulty; when such suspected matter is much coloured, it will not be easy to recognize the precipitates; and then a concentrated solution of chlorine should be added, and by this means, the arsenious will be converted into arsenic acid, which is very soluble. On filtering the liquor, we are to observe if it give a white precipitate with lime water or baryta, a whitish blue with acetate of copper, a brick red with nitrate of silver. If this liquor is boiled with hydrosulphuric acid, the yellow sulphur of arsenic is formed.

When the liquor obtained by the first operation contains animal matter, which prevents the deposition of precipitates, it is to be evaporated, an excess of nitric acid is to be added and carried to the boiling point, which will destroy the animal matter; the excess of acid is to be saturated with potass, a few drops of hydrosulphuric acid gives a precipitate of yellow sulphur of arsenic.

The contents of the stomach may contain arsenious acid in a solid or fluid state; when solid it may be mechanically mixed, and subside on simple decantation. If the quantity amount to a grain, it is said to be large, and is to be divided into three portions: the first is to be mixed with charcoal or black flux, prepared by deflagrating one part of nitrate of potass with two of supertartrate of potass, and sublimed in the manner mentioned by Dr. Christison in the subsequent extract; the second part should be boiled in distilled water until dissolved, and a drop or two of the solution placed on three different watch crystals; nitrate of silver should be added to one, when a yellow precipitate takes place; sulphate of copper and ammonia to the second, when a deep green deposit occurs; and sulphuretted hydrogen should be brought in contact with the third, when a yellow precipitate or stain will be produced.

Dr. Christison examines the tenth of a grain in the following manner:—

"The only instrument which should be used by the inexperienced, and the instrument which the chemist will always prefer when it is at hand, is a glass tube. When the quantity of the oxide is very small, it should not exceed an eighth of an inch in diameter.

"The proper material for reducing the oxide of arsenic is freshly ignited charcoal. With this substance the whole metal of the oxide of arsenic is disengaged. The black flux, which is usually recommended, is ineligible, if the quantity of oxide is very small; for only a part of the metal is disengaged, the other continuing in the flux, probably in the form of arseniuret of potassium. If the quantity operated on is large, it should be mixed with the charcoal or flux before it is introduced into the tube; if on the other hand it is small, a better plan is to drop it into the tube and cover it over with charcoal. The materials are to be introduced along a little triangular gutter of stiff paper, if the tube is large; but with a small tube it is preferable to use a little brass funnel, to which a brass or silver wire is previously fitted, for pushing the matter down when it adheres. In either of these ways the side of the tube is kept quite clean, which is a point of great consequence, especially when the black flux is used. In delicate experiments the material should not be closely impacted in the tube. By far the best method of applying heat is with the spirit lamp, at first suggested by Mr. Phillips. The upper part of the material ought to be heated first, and with a very small flame. Afterwards the heat should be applied to the bottom of the tube, the flame being previously enlarged by drawing out the wick with a pair of forceps. A little water, disengaged in the first instance, should be removed with a roll of filtering paper, before a sufficient heat is applied to sublime the metal. Whenever the dark crust begins to form, the tube should be held quite steady, and in the same part of the flame. By these precautions a well-defined crust will be procured with facility, even by a mere tyro in practical chemistry, as I have ascertained by repeated trials.''

The appearances of the arsenical crust, formed by the process stated in the concluding paragraph of the last article, are, according to Dr. Christison, imitated by no substance in nature. This is a most important conclusion, as Dr. Paris, Dr. Smith and Dr. Beck, have questioned the accuracy of the test by reduction. If any one persevere in denying the value of this test, the following process is considered certain—indeed, almost infallible. It consists in oxidation by heat, according to Dr. Christison:—

" The best method of applying this part of the test is to heat the ball containing its flux deprived of arsenic, to attach a bit of glass tube to the end, and to draw it gently off in the spirit flame, taking care to prevent the flux being driven forward on the crust. This being done, the whole crust, or, if it is large, a portion of it, is to be chased up and down the tube with a small spirit lamp flame till it is all converted into a white powder. In order to show the crystalline form of the powder distinctly, let the flame be reduced to the volume of a pea by drawing in the wick, and let the part of the tube containing the oxide be held half an inch or an inch above it. By repeated trials sparkling crystals will at length be formed, which are octahedres,—the crystalline form of arsenious acid. The triangular facettes of the octahedres may be sometimes seen with the naked eye, though the original crust was only a fiftieth of a grain or even less; and they may be always seen with a lens of four powers, the tube being held between the eye and a lighted candle, or a ray of sunshine, either of which is preferable to the diffuse daylight for making this observation. For the success of the oxidation test it is indispensable that the inside of the tube be not soiled with the flux, if the flux contained an alkali; because the alkali would unite with the oxide. It is also requisite not to heat the tube suddenly so as to redden it before the oxide is sublimed; because then the oxide unites with the glass, forming a white, opaque enamel.

"Such is the best and only process I should recommend for the detection of arsenic when in its solid form."

When arsenious acid is mixed with the contents of the stomach, we should remember that various animal and vegetable principles are present, such as albumen, mucus, tannin, and caseum. To separate the acid, we must add silver, copper, lime or sulphur, which will form a compound, from which the poison can be subsequently disengaged. But Dr. Christison has proved the fallacy of these tests. He has shown that nitrate of silver will cause a yellow precipitate with animal matter, similar to that produced when arsenic is present. A similar effect resulted from the sulphate of copper. He recommends the following experiment in preference to all liquid re-agents. His object is to procure sulphuret of arsenic, which he accomplishes by transmitting sulphuretted hydrogen through the solution. Acetic acid is to be first added in excess to the suspected liquor, for the purposes of neutralizing any alkali that may be in the stomach, and of precipitating animal principles. The fluid is filtered, and a stream of sulphuretted hydrogen is passed through it for a quarter of an hour, when, if arsenic is present, a lemon coloured precipitate is thrown down; or if the quantity is small, it is suspended in the fluid; in both cases it is necessary to boil the fluid, in order to expel any excess of sulphuretted hydrogen, which would otherwise retain the sulphuret of arsenic in solution. This test discovers arsenious acid in one hundred thousandth part in water. The sulphuret of arsenic is to be mixed with recently ignited charcoal and carbonate of soda, and reduced in a tube as already described. The following mode of deflagrating the sulphuret of arsenic is recommended, in preference to those proposed by Berzelius and Christison, by Dr. O'Shaughnessy, the commentator on the processes of the latter, in the *Lancet*:—

"About a scruple of powdered nitre should be melted by the heat of a spirit lamp in a green glass tube about six inches long and half an inch in diameter; the impure sulphuret of arsenic should then be dropped into it in minute particles, one by one; in this manner the decomposition of the organic matter usually takes place without flame, or at most with minute scintillations, and the sulphuret of arsenic is converted into the sulphate and arseniate of potass; the tube should then be allowed to cool, and boiling water added to dissolve the saline mass; the solution should then be filtered. Instead of lime water, we would now add the nitrate of silver, which causes a brown red precipitate of the arseniate and sulphate of silver, which is exceedingly insoluble in water. Finally, this precipitate should be dried, mixed with recently ignited charcoal, and reduced in a tube.

"We feel confident that this method will succeed in experienced hands in many instances in which the complex precipitations of animal matter by the nitrate of silver, would frustrate the analyser's expectations."

The following information as to the detection of the other preparations of arsenic, by the same writer, is so valuable, that I place it before the reader:—

"Such are the several modes of proceeding in our search for arsenious acid. As we before observed, however, there are many other arsenical poisons which would elude this mode of analysis; we may particularize the arsenite of copper (Scheele's green), and the yellow sulphate of arsenic, orpiment, or King's yellow. The two last, being entirely insoluble in water, remain undissolved in the solid contents of the stomach; it will be recollected also, that the arsenious acid, on the one hand, is liable to be converted into the yellow sulphuret by sulphuretted hydrogen in the stomach, or in the alimentary canal; and, on the other, that the orpiment of the shops almost invariably contains the arsenious acid.

" After the boiling and filtering, therefore, which constitute the first step in Dr. Christison's process for the arsenious acid, the solid matter should again be collected, introduced into a stoppered phial, and some weak ammonia added, which will take up either orpiment or Scheele's green. After a few hours the mixture should be filtered, and acetic acid added to the fluid which passes through, when, if it contain the arsenite of copper, a green precipitate is slowly formed; if it contain the sulphuret of arsenic, a yellow precipitate is soon deposited. If the precipitate be green, we have to seek for two metals in it, arsenic and copper. The first is recognized easily, by mixing the powder with charcoal and dried carbonate of soda, and heating it to redness in a tube, when the metal is reduced and sublimed, leaving behind it the copper, which may be detected by dissolving the residuum in dilute nitric acid, evaporating to dryness, mixing the dried mass with an equal quantity of borax, and acting on it with the blowpipe on charcoal. In the exterior flame, it forms a globule of beautiful green glass, which in the interior flame is coated with metallic copper, though the quantity be not more than the 500th part of one grain. For directions on the use of the blowpipe, see the article on lead.—p. 416.

" If the deposition from the alkaline solution be yellow, it should be reduced in the manner already detailed, which it is superfluous now to repeat. It is here, however, necessary to re-dissolve the residuum in the tube, in water, and add a drop or two of a solution of the acetate of lead, which becomes blackened, both experiments indicating that the yellow precipitate is the SULPHURET of arenic.

" The arsenical poison may also have been the arseniate of potass. Orfila has besides very recently asserted, that the arsenious acid is liable to be converted into the arseniate of ammonia, when the body in which it is contained has long been exposed to decay. A portion of the fluid prepared with acetic acid, according to Dr. Christison's plan, should, therefore, before transmission of sulphuretted hydrogen, be touched with nitrate of silver, which in any solution will show the presence of the arseniate. Should a brown precipitate occur, it is to be collected for reduction with charcoal. The remark, however, applied to Dr. Venables' proposal, must be remembered here. Great difficulty, arising from empyreuma, will occur in the reduction; a difficulty which, as yet, we have not been able to overcome.

"How far the additional step of examining the solids is actually necessary in this country, it may be difficult to determine. Dr. Duncan has seen one case of poisoning by Scheele's green, which he detected in pills, and a second of poisoning by orpiment, which had been mixed with tea. At any rate, the additional experiment turns the solid substances to account, which, in Dr. Christison's analysis is altogether neglected."—*Lancet*, 1831, vol. i.

Sedillot informs us that there are two sulphurets of arsenic, the orpiment and realgar, from which, if heated with potass, metallic arsenic will be obtained by sublimation. MM. Geizer and Reiman, digest the mixture for some time with liquid ammonia, it is then filtered, and hydrochloric acid added in excess. If a yellow precipitate occurs, it is an indication of arsenic; but when there is no precipitate, we cannot pronounce negatively; the fluid is to be evaporated to dryness, more ammonia is added, and the admixture is saturated, as before, with hydrochloric acid: on adding a few drops of hydrosulphuric acid, a yellow precipitate takes place, if arsenic is present.

Arseniates of potass, soda, and ammonia, when projected on live coals, volatilise in the form of arsenic acid. Mixed and heated with charcoal, metallic arsenic will be obtained.

Action of arsenic, and the symptoms it excites in man.—Arsenic acts in two ways, most commonly by inducing inflammation of the gastro-intestinal mucous membrane, or by lowering or arresting the action of the heart. Again, its effects may be purely narcotic. It may destroy life, and leave no mark of disease to account for death. It proves deleterious when applied to wounds, and sometimes even to ulcers, and when injected into the vagina or rectum.

To whatever part it is applied, unless death speedily follow, it almost always produces inflammation of the stomach: even this inflammation is, in some instances, more intense when the poison is applied to the external surface of the body. According to the experiments of Morgan and Addison, all poisons appear to act through the nerves. Dr. Christison thinks farther experiments necessary to confirm this conclusion; but he has not offered a valid objection to it.

Medical witnesses are often asked what is the smallest dose of arsenic which proves fatal? This question cannot be answered but vaguely. The quantity is not as yet determined; and of course a great deal must depend on the state of health. age, habit, diet, in a word, on concomitant circumstances. Hahnemann thinks four grains will prove fatal in twenty-four hours. Christison has related a fatal case of a child four years old, in which death took place in six hours, from four and a-half grains in solution. The smallest fatal dose of solid arsenic he has read of was thirty grains. He thus describes the order of symptoms of poisoning with arsenic:—

" The symptoms of poisoning with arsenic may be advantageously considered under three heads. In one set of cases there are signs of violent irritation of the alimentary canal, and sometimes of the other mucous membranes also, accompanied with excessive general depression, but not with distinct disorder of the nervous system. When such cases prove fatal, which they generally do, they terminate for the most part in from twenty-four hours to three days. In a second and very singular set of cases there is little sign of irritation in any part of the alimentary canal; perhaps trivial vomiting or slight pain in the stomach, sometimes neither; the patient is chiefly or solely affected with excessive prostration of strength and frequent fainting; and death is seldom delayed beyond the fifth or sixth hour. In a third set of cases, life is commonly prolonged at least six days, sometimes much longer, or recovery may even take place after a tedious illness; and the signs of inflammation in the alimentary canal are succeeded or become accompanied about the second or fourth day, or later, by symptoms of irritation in the other mucous passages, and more particularly by symptoms indicating a derangement of the nervous system, such as palsy or epilepsy. The distinctions now laid down will be found in practice to be well defined, and useful for estimating in criminal cases the weight of the evidence from symptoms."

It is now ascertained that persons to whom arsenic is criminally administered, combined with food, do not experience that acrid burning taste in the mouth and throat, so long considered characteristic of this poison. The first symptoms are usually sickness and faintness, which generally commence in fifteen minutes, though, in some cases they do not happen—indeed, no symptom has been observed for five hours (Orfila). The patient commonly survives twenty-four hours, seldom more than three days, but may be destroyed in three hours, or survive for weeks. The symptoms commence in a few minutes, and this is a point of great importance to the medical jurist, as it enables him to detect persons who allege they had not felt them for some hours after the supposed poison was exhibited. In general, we observe in a few minutes after the sickness has commenced, there is intense burning pain in the stomach, which is greatly aggravated by pressure. Retching and vomiting ensue, especially when drink is taken, there is often a sense of dryness, heat and tightness in the throat, exciting a desire to drink; but this train of symptoms may be absent. The powers of swallowing and speech are greatly diminished, and there is often a sense of suffocation. The fluid which is vomited is yellow or green, and sometimes streaked with blood. There is sometimes diarrhœa, or bowel complaint, or a sense of burning heat, or actual inflammation, along the digestive tube from the mouth to the anus. In other cases, the large intestines do not suffer. Again, the genito-urinary organs of both cases may be irritated or inflamed, and of course their functions deranged. In consequence of the intense pain or inflammation in the stomach or bowels, the diaphragm cannot act freely, and the respiration will be more or less impeded. There are convulsive twitchings of the trunk and extremities, violent cramps of the legs, the pulse is small and soon becomes imperceptible, the extremities cold, clammy and livid, the countenance is pale and sunk, the tongue and mouth are dry, and often covered with white ulcers or aphthæ, delirium supervenes, and death closes the scene. In some cases the person expires calmly, in others in convulsions. When the sufferer survives for days or weeks, the body may be covered with eruptions of various kinds, sometimes resembling small-pox, petechiæ, miliaria, &c. In some cases, a remission of all suffering takes place on the second day; but this is delusive, as all the bad symptoms usually return with increased force.

These are the chief symptoms of poisoning by arsenic, but it is to be always recollected, that many of them may be absent, others less violent, and that they are not all present in every case. In the *Med. Repository*, vol. ii., Dr. Yelloly, of Norwich, related the case of a lad, aged sixteen, who died in twenty hours, from having taken half an ounce of the white oxide—he never complained of pain, though gastro-intestinal inflammation was indicated by sickness, vomiting, and purging. Another extraordinary circumstance in this case, was the slowness of the pulse, which was 40, and after some time only 30. Upon the whole, however, the symptoms of poisoning by arsenic are in general very uniform.

In some cases, when the patient dies within four or six hours, there is not sufficient time for the developement of the symptoms related above. Here we have faintness amounting to syncope, stupor, coma, or convulsions. There may be slight vomiting, but the symptoms of narcotism are prominent. In these cases, though half an ounce of arsenic may be found in the stomach, this organ will be healthy. Yet the patient has been destroyed in eight hours. The poison is supposed to act on remote organs, of course by nervous sympathy. Morgagni, Chaussier, Orfila, and Christison, cite examples of poisoning by arsenic, in which the stomach and bowels were healthy. Again, the inflammatory symptoms may disappear, or nearly so, and nervous symptoms supervene, as coma, palsy of the arms or legs, hysteria, or mania. These occur when the patient has taken a small quantity, or from having vomited soon after, or when death takes place after a protracted illness. Delirium, tetanus, convulsions, and coma, may be produced by the poison under notice. The preceding remarks contain, I believe, all that is absolutely determined of the effects of arsenic, when swallowed, on the human subject. I have drawn information from all sources, and very largely from Professor Christison, whose language I have often condensed. Every fact stated might be corroborated by authorities, many of which will be found in his erudite and standard work on Toxicology.

Medical jurists and toxicologists are almost universally of opinion, that symptoms alone can never supply decisive proof of the administration of arsenic. This opinion is correct in the majority of cases, as the symptoms are only burning pain in the stomach and bowels, vomiting and purging, oppressed circulation, excessive debility, and speedy death. These symptoms are characteristics of cholera; but I fully agree with Dr. Christison, that when the inflammatory and nervous symptoms, already detailed, have been present, the evidence is conclusive. This able author relates some cases in proof of this conclusion, which no jurist can question. He properly maintains, that it is probably within the bounds of possibility, but in the highest degree improbable, that disease can produce the train of symptoms consequent on poisoning by arsenic.

The Morbid Appearances do not always enable us to pronounce a positive opinion that poison has been taken. In many cases there will be no redness in the mucous membrane of the gullet, stomach, or intestinal tube, though in general such appearances are present. Nor can these be distinguished from ordinary results of disease. This fact is well attested by M. Andral, in his account of hyperemia of the gastro-intestinal mucous surface. (*Pathology*). Black elevated spots on this surface sometimes appear, and in the opinion of the Edinburgh Toxocologists, are held to be diagnostic; but Andral mentions such appearances in cases in which there was no symptom indicative of intestinal disease. The softening of the mucous coat of the stomach, or perforations of the three coats of this organ, are the result of disease, as well as the effects of poisoning by arsenic; and here I must remark, that Andral thinks more evidence is wanted to warrant the conclusion of Mr. Hunter, which ascribed such condition to the influence of gastric fluid after death. (*Op. cit.*) The older jurists said arsenic eroded or corroded the stomach, which is a palpable mistake; and this substance has no chemical affinity for animal matter, and is not a corrosive. The presence of black clots of blood in the stomach, is a strong proof that arsenic has been administered. It is to be recollected, however, that in melæna or yellow fever, the black fluid, or black vomit, as it is vulgarly denominated, may exist in large quantity in this organ without any breach of surface.

Arsenic is generally found adherent to the stomach, though vomiting may have continued for thirty-six hours. Every white powder found in the stomach is not to be mistaken for arsenic; the proper tests must determine the presence of the poison. It is singular that the rectum may be ulcerated, though the rest of the large and small intestines may be healthy. The mucous membrane of the windpipe and lungs may be inflamed, as also the inner surface of the heart, or there may be absolute inflammation of the lungs. The cardiac appearance is equivocal, though much dwelt upon by Sedillot. The sexual organs are said to be black and congested, but little reliance is to be placed on these appearances. Dr. Christison cites numerous cases to prove, that when arsenic is retained in the stomach and bowels, putrefaction is impeded even for days, weeks, or months. It has been said, that the vessels of the brain are congested by the poison under notice; but little reliance can be placed on such appearances. Upon the whole, little certainty can be placed on the pathological appearances produced by arsenic, though they afford strong presumptive evidence.

With respect to the treatment of this species of poison, it is now determined that the chemical antidotes are of little use. Milk is the best fluid, and should be drunk freely. If vomiting come on, the milk should be continued, and inflammation prevented by free depletion, and large doses of opium; local bleeding is of little use. Castor-oil and opiate suppositories are highly valuable.

Preparations of copper.—Two preparations of copper have been used as poisons, the deuto-acetate (crystallized verdigris) and the deuto-sulphate (blue vitriol). Solutions of these, as well as of nitrate of copper, are of a fine blue colour. Potass, soda, and baryta decompose them, and precipitate the deutoxide in the state of hydrate. Hydro-sulphuric acid, and the soluble hydro-sulphates, give a precipitate of the black sulphuret of copper. When a plate of iron is immersed in the solution, it is covered with a coat of copper.

The sulphate of copper is used instead of yeast for the fermentation of bread. The preparations of copper can seldom be disguised, on account of their colour, and are rarely administered as poisons. It is to be borne in mind, that there is scarcely an article of food or drink which may not be impregnated with copper, if kept in copper vessels after having been boiled. The impregnation does not take place during boiling, but after cooling, and is caused by alimentary matters invariably containing some acid or fatty matter. The detection of combinations of copper in vegetable and animal mixtures, is not as yet satisfactorily determined. The reader will find all the information on this subject in Dr. Christison's work on poisons. The white of eggs is the best antidote for the poisonous preparations of copper.

Preparations of Antimony.—Tartarized antimony, or tartar-emetic, is the preparation of antimony which most commonly produces poisonous effects.

"By far the best re-agent," says Dr. Christison, "is *sulphuretted hydrogen.* In a solution containing only an eighth part of a grain per ounce, it strikes an orange-red colour, which, when the excess of gas is expelled by heat, becomes an orange-red precipitate; and if the proportion of salt is greater, the precipitate is thrown down at once. The colour of the precipitate is so peculiar as to distinguish it from every other sulphuret; but if any doubt regarding its nature should occur, it may be known at once by the process of reduction with hydrogen gas.

"Tartar-emetic, like the soluble salts of mercury and copper, is decomposed by various organic principles. All vegetable substances that contain a considerable quantity of tannin, have this effect; of which an example has been already mentioned in the action of infusion of galls. Decoctions of cinchona bark decompose it still more effectually. The animal principles do not act on tartar-emetic, with the exception of milk, which is slightly coagulated by a concentrated solution.

Many vegetable and animal substances, though they do not decompose it, alter the operation of the fluid tests. Thus tea, though it does not effect any distinct decomposition of the salt, will prevent the action of the nut-gall infusion; and French wine gives a violet tint to the precipitate with that test and with sulphuric acid. The sulphuretted hydrogen gas however, acts, according to Dr. Turner, under all circumstances, and always characteristically, whatever the colour of the fluid may be. He found, that when transmitted through a diluted solution in tea, porter, broth, and milk, with certain precautions to be mentioned presently, he procured a precipitate which either showed its proper colour at once, or did so at the margin of the filter on which it was collected.

"The best mode of showing the presence of antimony is the method proposed by Dr. Turner. He places a little of the sulphuret of antimony in a horizontal tube, transmits hydrogen gas through it, and when all the air of the apparatus is expelled, heat is to be applied to the sulphuret with a spirit lamp. Sulphuretted hydrogen is evolved, and metallic antimony is left if the current of hydrogen is gentle, or it is sublimed if the current is rapid. When there is much animal or vegetable matter present, the metal is not always visible. It is to be heated in an open tube, when it oxidates, and sublimes in the form of a white powder, which glimmers, but is not crystalline and adamantine, like oxide of arsenic."—*On the Detection of Antimony in mixed Fluids, Edin. Med. and Surg. Journ.* xxxviii. 71,

When tartar-emetic is taken in excessive doses, it produces vomiting, violent pain in the stomach, colic pains and purging; in a word, inflammation of the gastro-intestinal mucous membrane. There are violent cramps of the limbs. In some cases, there have been eschars and perforations in the intestinal canal. This medicine is now given in repeated doses to the extent of twenty or thirty grains in pneumonia, without any poisonous effects—a fact which proves it is not so dangerous as formerly supposed. When applied to the skin, it sometimes induces severe nausea; two instances of which have fallen under my observation. One patient was an adult male, the other a female.

The best *antidote* for this poison is a decoction of yellow-bark, or the tincture, if it can be procured, or the bark in powder. Vomiting should be first induced by copious draughts of warm water, or by tickling the throat with a feather, or a finger. When the poison is evacuated, opium is useful, but we must recollect the danger of gastro-enteritis, and act accordingly.

Preparations of Tin, Silver, Gold, Bismuth, Chrome, and Zinc, are rarely employed as poisons, and very little is known of their effects. The reader must consult systematic works on jurisprudence for information as to the effects of these metals.

Preparations of Lead.—The preparations of lead which claim especial attention, are litharge, red lead, white lead, and sugar of lead, or, according to chemical nomenclature, the protoxide, deutoxide, carbonate, and acetate. Dr. O'Shaughnessy objects to the re-agents proposed by Dr. Christison, namely, the chromate of potass, hydriodate of soda or potass, and metallic zinc. These, he says, may be applied, by an inexperienced person, to a copper solution, and positive testimony given to the detection of lead. He therefore prefers the reduction process, which is extremely easy, and affords the most satisfactory evidence.

" A small hollow should be scraped in a piece of dense fine charcoal, and in this the sulphuret should be placed, moistened with a drop of distilled water, in order to make it adhere to the support: it should then be touched with the *interior*, or blue flame of the blowpipe, when the reduction almost instantly takes place. The little globule of metal should then be removed and examined, for we have now to distinguish it from silver, which, take it in the pure state, is a white, shining, and a soft metal; the globule should, therefore, be flattened by gentle pressure, replaced on the charcoal, and touched with the *furthest* point of the flame, when it quickly disappears, and on withdrawing the charcoal, two beautiful concentric circles of red and yellow remain, being the yellow and red oxide of lead. Nothing can be so conclusive as this experiment, and its success is perfectly certain.

" When a soluble salt of lead, is taken to an excessive dose, the phosphate of soda, or sulphate of soda or magnesia, should be administered as soon as possible, and vomiting speedily excited: an insoluble sulphate or phosphate is thus produced, and an effectual antidote supplied. A point now remains for consideration, which Dr. Christison has entirely omitted, viz. the means of detecting lead in the condition of the extremely insoluble phosphate or sulphate contained in the vomited matters; for this purpose the matters should be agitated with a considerable quantity of water; this mixed with solid matter, the phosphate or sulphate from its weight quickly subsides, and should be collected, washed, and heated to redness with charcoal in a glass tube; phosphuret, or sulphuret, of lead is thus generated, either of which may be reduced by the blowpipe, in the manner above directed; the reduction should be accomplished in the interior flame, when, if the salt be the phosphate, which the analyst should always inquire, the process presents a modification thus described by Griffin, in his excellent Manual on the Use of the Blowpipe, p. 177, and for the accuracy of which description, we can vouch from repeated trials.

"Before the blowpipe alone on charcoal, in the *exterior* flame, it melts, and on cooling, forms a dark-coloured polyhedral crystal, the faces of which present concentric polygons. In the interior flame it exhales the vapour of lead; the flame assumes a bluish colour, and the globule, on cooling, forms crystals, with broad faces inclining to pearly whiteness. At the moment it crystallizes, a gleam of ignition may be seen in the globule. If the crystallized mass be pulverized and heated with borax, there results in the first place, a milk-white opaque enamel; upon the continuance of the heat this effervesces, and at length becomes perfectly transparent, the lower part of it being studded with metallic lead.

"Another and still easier mode is, to suspend the phosphate or sulphate in water, transmit sulphuretted hydrogen, wash and reduce by the blowpipe flame. In both cases the concentric circles of red and yellow oxide remain on the charcoal when the flame is removed."

The foregoing extracts and remarks are amply sufficient for the guidance of the examiner of matters of food, drink, &c.

suspected to be adulterated with lead, with the exception of cheese, which has been, and is, occasionally, coloured with red lead. In this case, the cheese should be chopped into fragments and suspended in water, when, if blackened by sulphuretted hydrogen, the indication may be considered decisive, without further trouble.

The poisonous effects of lead on miners, smelters, painters, glaziers, litharge, and white lead manufacturers, are described in works on the Practice of Medicine and Toxicology, and are rarely, if ever, the subject of medico-legal inquiry.

Dr. Christison's chapter on lead is still the most interesting ever published. In relation to medical police, it is of immense importance. The narration of the effects of water on lead will be perused with advantage by the best informed of the faculty. It would be superfluous to copy it here, as the original is in the hands of every scientific practitioner.

There is also much valuable information on this subject, in another valuable and popular work, The Cyclopædia of Practical Medicine—article Toxicology.

Preparations of Baryta.—These have been as yet so seldom employed as poisons, except on the inferior animals, that the student of toxicology may be spared the trouble of considering their detection at the present period.

Irritative Vegetable Poisons.—This class of poisons seldom comes under the consideration of the medical jurist, and, according to Dr. Beck, "vegetable poisons are seldom the instruments of murder." When death is produced by their operation, it generally is caused by suicide or accident, and the coroner's inquest is the only judicial investigation which takes place. Besides the greater portion of these poisons so seldom cause death, that the young jurist need not load his memory with most of them, and he must necessarily be acquainted with the effects of them, from his study of the materia medica. A detail of these is evidently unimportant in a compendious work of this description. It is sufficient for my purpose to state, that these poisons have an acrid, sharp, and bitter taste; that they produce nearly the same symptoms as arsenic, mercury, &c. and that the morbid appearances are nearly the same as those originating from the acrid mineral poisons. The symptoms excited by both classes cannot, in many instances, be distinguished from those arising from diseases.

Orfila's classification of irritative poisons is adopted in these countries and in the United States of America, and is decidedly the best hitherto proposed. He divides them into four classes,—1. the irritating, corrosive, or acrid; 2. the narcotic, or stupifying; 3. the narcotico-acrid; and, 4. septic or putrefiant.

1. *Irritative or acrid Poisons,* are veratrum album (white hellebore), veratrum viride (green hellebore), helleborus niger (black hellebore), helleborus fœtidus (fœtid hellebore), byronia dioica (byrony), momordica elaterium (wild cucumber), cucumis colocynthis (bitter apple), stalagmitis cambogioides (gamboge), daphne gnidium (spurge flax), daphne mezereum (mezereon), ricinus communis (castor oil plant), euphorbia officinarum (euphorbia), juniperus sabina (savine), rhus radicans et rhus toxicodendron (poison oak), rhus vernix (poison sumach), anemone pulsatilla (wind flower, a—pratensis, sylvestris), and nemorosa, œnanthe crocata (hemlock dropwort), ranunculus acris (butter cups), r—sceleratus (water crow-foot), r—flammula, bulbosus, ficaria, alpestris, &c., colchicum autumnale (meadow saffron), chelidonium majus (celandine), delphinium staphisagria (stavesacre), narcissus, pseudonarcissus, meadow narcissus (daffodil), gratiola officinalis (hedge hyssop), jatropa curcas (Indian nut), scilla maritima (squill), sedum acre (house-leek, wall-pepper), convolvulus scammonea (scammony), some of the species of lobelia, croton tiglium, and arum maculatum (wake robbin); there are several other plants included under this head, but which are so rarely administered criminally, that they may be omitted. Among these are to be included a great number of the drastic purgatives.

The *treatment* of persons who have taken the poisons of this class, consists in evacuating the stomach by emetics, the exhibition of mucilaginous drinks, and should stupor supervene, the administration of coffee, according to Orfila. Should inflammation arise, it is to be treated by the usual antiphlogistic measures.

2. *Narcotic Poisons.*—Narcotic poisons produce stupor, drowsiness, paralysis, apoplexy and convulsions, and most of them are employed as medicines. Their primitive action is on the brain and spinal marrow, to which parts they are transmitted with the blood, according to the general opinion; but Morgan and Addison contend that they act on the nerves of the blood vessels or other parts to which they are applied, as mucous surfaces, and not through the blood. This conclusion is the most correct and accurate. However they may be introduced into the system, whether through the stomach, rectum, cellular, serous or mucous tissues, they always produce the same symptoms. The aggregate of these symptoms is denominated narcotism.

Narcotism commences by a sense of weight in the head, giddiness, head-ache, obscurity of vision, stupor, or perfect insensibility, followed by nausea, vomiting, profound sleep, which amounts to apoplexy, the respiration is stertorous or slow, the pulse full, slow, and strong, becoming small, frequent, irregular, and intermittent. In some cases the imagination is vivid, there may be slight or furious delirium, followed by plaintive cries, violent pains, and convulsions. The extremities are flexible, paralysis follows, impressions are unperceived, the pupil is contracted or dilated, and profound sleep or convulsions precede death.

Each poison has its peculiarities, the effects of each being generally the same from certain doses on different individuals.

Autopsy.—There is generally congestion in the vessels of the brain, its membranes, and in the lungs, but such appearances may be absent. The heart is flaccid, and the blood black and fluid, though sometimes coagulated; the gastro-intestinal canal offers no trace of inflammation, and when there are signs of irritation in these parts, it is produced by the substances with which the poison was associated. The body remains a long time warm and flexible. It therefore appears, that little reliance can be placed on the morbid appearances.

The diseases which may be confounded with poisoning by narcotics, are apoplexy, epilepsy, convulsions, inflammation of the brain, and syncopal asphyxia; the diagnosis of which will be found in the systematic works on Pathology and Practice of Medicine. This important information is also concisely detailed by Dr. Christison, in his work on Poisons, to which I refer the reader.

Opium.—Opium is the poison which most claims the attention of the physician and medical jurist, as there is scarcely any other so frequently employed. It is taken by suicides; it is sometimes mixed with porter and other inebriating liquors, and we often observe its poisonous effects as a medicine. After all that has been written on the effects of this medicine upon man and animals, our knowledge is still imperfect as to the phenomena it may produce in individual cases. This arises from peculiarity of habit, or what is technically called idiosyncrasy. In small doses it is said to act as a stimulant, but a single dose produces but a slight and transient effect. Every medical practitioner knows that small and repeated doses may produce a sedative effect. Neither will the largest dose always act as a sedative. In a case of delirium tremens, I exhibited between laudanum, black drop, and tincture of henbane, 960 minims in seventy-eight hours, without inducing the slightest sedative effect. In all painful diseases, a much larger dose than that laid down in books must be administered, and often a stimulating, instead of a sedative effect, will be produced. In tetanus and other spasmodic diseases, we often fail to produce any effect by the largest doses.

The symptoms of poisoning by opium are generally the following,—giddiness, stupor without previous excitement, respiration slow and often stertorous, insensibility to external impressions, power of motion completely lost, eyes closed or half open, pupils contracted, countenance indicative of perfect repose, pulse slow and full, but may be frequent and small; in a short time the countenance becomes ghastly, the pulse small and imperceptible, and death ensues. If the person recover, he falls into a profound sleep, which may continue twenty-four or thirty-six hours. On awaking, he complains of nausea or vomiting. Nothing, however, is more variable than the symptoms attributed by authors to poisoning by opium; even its medicinal effects are as yet undetermined.

The length of time between taking the poison and the commencement of its effects may vary. Sometimes the symptoms commence in a few minutes, at other times not sooner than an hour, or even five hours.

The sopor produced can be distinguished from that caused by apoplexy or epilepsy, as the patient can be roused by agitation, loud speaking, tickling the nostrils, &c.; convulsions, though generally present in animals, seldom occur in the human subject. The ordinary duration of a fatal case of poisoning by opium is from seven to twelve hours; most persons recover who survive twelve hours; though death may take place long after this period. The quantity of opium capable of causing death is not determined. It varies in different cases. A person has taken eight ounces of crude opium and recovered; and an opium eater has taken nine ounces of laudanum daily with impunity. The smallest dose which has been recorded as fatal, was half an ounce of laudanum, and four grains of opium in cases of adults. We almost daily see infants in this city poisoned by opium; but as this arises from the general practice of exhibiting "sleeping draughts" by nurses, and as these are quack nostrums, we can seldom discover the exact quantity that has been given, more especially as the publicans prepare their diacodium, and the druggists their composing cordials of very different degrees of strength.

The external application of opium to ulcers or wounds, or its injection into the rectum, may cause death.

Action of Morphine and Narcotine.—Many jurists maintain that the effects of morphine on man are similar to those of opium; but others deny the validity of this opinion. Its effects in fatal doses are undetermined. A Parisian graduate swallowed twenty-two grains of the acetate, received no assistance for ten hours, when Orfila was called to see him, who, by depletion, sinapisms, ammoniated frictions to the thighs, stimulating clysters, and acidulous drinks, improved him so much, that in six hours he recognized his physician. When morphine is taken into the stomach, it produces the same effects as the acetate, probably from its combination with the acids in the stomach. The same symptoms supervene as when opium is employed. The cerebro-spinal system is chiefly affected. The morbid appearances are so trivial, that no reliance can be placed upon them. Deportes, Bailly, Chevallier, and Flourens, state, that there is great congestion of the encephalic apparatus.

Narcotine.—Orfila, Magendie, and Bailly, have experimented with this substance, and disagree as to its properties. The last author has given 120 grains daily without producing any accident. It is said to be a stimulant; but Dr. Whiting has lately related to the Medico-Botanical Society, the results of some experiments he made with this substance on his pupils, and in the dose of two grains, the action of the heart and arteries was not increased. I have not discovered the report of any case of poisoning by this substance. Dr. Christison observes, with respect to the detection of opium, "it may be laid down, therefore, as a general rule, that in poisoning with opium, the medical jurist, by the methods of analysis yet known, will often fail in procuring satisfactory evidence, and sometimes fail to obtain any evidence at all, of the existence of the poison in the contents of the stomach."

The best test for opium is the following proposed by Mr. Hare, of Philadelphia, but taught by Dr. Christison before the process was published,—A solution of the acetate of lead is to be added to the suspected fluid in a conical glass vessel, and from six to twelve hours a precipitate subsides, which is the meconate of lead. A few drops of sulphuric acid are to be poured through a tube on it. On the addition of a solution of permuriate of iron in the same manner, a cherry-coloured meconate of iron appears. Philadelphia Journ. of the Med. and Physical Sciences, v. 77. Christison says, the superincumbent fluid, after the precipitate has subsided, should be removed before the application of the sulphuric acid and permuriate of iron; and observes, that this test cannot be applied to deeply coloured fluids, or to complex organic mixtures.

Treatment of Poisoning by Opium.—The poison is to be removed from the stomach as speedily as possible, by the exhibition of ʒss. to ℈ij. of sulphate of zinc, or by the stomach-pump. The zinc is the best emetic in these cases. Tartarized antimony is too uncertain. Should the zinc and stomach-pump fail, the only other means of evacuating the stomach is, by transfusing a grain of tartar-emetic into a vein in the arm, great care being taken not to introduce air into the vein. This plan is, in general, successful, though very seldom resorted to. The patient should be roused and kept moving for six or twelve hours, by the unwearied exertions of strong men. After the stomach is evacuated by means of the emetic and pump already described, diluted vegetable acids, coffee, and abstraction of blood, whenever there are signs of cerebral congestion, constitute the best remedies.

In a case of narcotism, induced by forty drops of laudanum, which were exhibited for intense pain in the stomach, the lady having long suffered from cerebral congestion, the respiration was slow, the breathing stertorous, the pupils contracted, the pulse rapid and small, the convulsions present for twelve hours; after the zinc had caused vomiting, venesection was employed three times, the pure liquor of ammonia was applied to the face, chest and thighs, sinapisms to the feet and legs, cupping on the temples, a blister to the neck and between the shoulders, lemonade and coffee freely used, and relief obtained in twelve hours from the commencement of the operation of the opium. Dr. Uwins also saw this case with me, and fully concurred in the treatment. The application of strong ammoniated oil to the inside of the thighs, with sinapisms to the feet, restored a child of four years of age, who had been thirteen hours in a state of stupor from opium. In extreme cases, artificial respiration may save life. There is no antidote for opium; our chief effort should be to remove it from the stomach as speedily as possible.

Hyoscyamus.—The root of henbane has been mistaken for parsnip and that of the wild chicory, and sometimes causes death. The symptoms induced are giddiness, loss of speech, pallidity of the countenance, excessive dilatation of the pupils, and so profound an insensibility of the retina, that the cornea may be touched, without the patient perceiving it, delirium and coma supervene, and sometimes nausea and vomiting; there are all the signs of cerebral congestion, and death speedily takes place. Orfila says, that the root is inert in spring, but Mr. Wilmer relates six cases of poisoning, one of which proved fatal, by the root gathered in winter.—(*On the Poison-*

ous Vegetables of Great Britain.) Mr. Houlton, late professor of botany to the Medico-Botanical Society, has stated that the hyoscyamus is only fit for medical purposes in the second year of its growth. M. Runga, of Berlin, has indicated a new means of discovering poisoning by this plant, or by belladonna or thorn-apple. It is to touch the conjunctiva of a cat with some of the liquid, which contains traces of these vegetables, when dilation of the pupil will be effected, which cannot be induced by any other substance. (*Sedillot.*) The appearances on dissection are inflammation of the digestive tube, and sanguineous injection of the cerebro-spinal apparatus.

Lactusa virosa.—This plant, with the lettuce opium, is inferior to opium and henbane, and does not cause fatal effects, except in doses of two or more drachms.

Solanum.—The different species of this plant are said to be poisonous, and to resemble hyoscyamus.

Hydrocyanic Acid.—The plants which afford this acid are, bitter almonds, cherry-laurel, peach-blossom, and cluster-cherry. It is the most fatal and powerful poison known. When a few pure drops of hydrocyanic acid are injected into the jugular vein, they cause death with the rapidity of lightning, so that its action must be through the medium of the nerves. When a dose is not sufficient to cause instant death, the respiration becomes slow, and convulsions, vomiting, and frequent alvine dejections, come on. When the dose is very large, death takes place without convulsions, the patient staggers and dies in a few seconds. In a case which happened last year, in the borough of Southwark, the man swallowed an ounce of the medicinal acid; he staggered several paces, and walked but a few yards, before he fell and expired. The particulars of this case were detailed in the London Medical Society. The strength of the acid, prepared in London after Scheele's process, is very variable, and is not the same in any two laboratories. It is twice as strong in one as in another. See my *Practical Formulary of Hospitals.* It is decided that a large dose causes death in a few seconds, or in a very few minutes. The morbid appearances after death are equivocal. The tests for this acid are, its peculiar odour in the stomach or blood, the sulphate of copper, the salts of the protoxide of iron, and nitrate of silver. The odour must be perceived by different persons; and, according to Drs. Christison and Turner, the proto-sulphate of iron is a more delicate test than the sulphate of copper. The best mode of treating a case of poisoning by hydrocyanic acid, is the application of cold affusion before or after the convulsions have commenced, and the inhalation of diluted ammonia or chlorine. The liquor ammoniæ should be diluted with twelve times its weight of water. It is always to be recollected that if a large dose, say three or more drachms, of the acid be taken, the effects are so sudden, that no treatment can save the patient.

The essential oils, or distilled waters of the plants named in this article, produce the same effects as prussic acid.

3. *Narcotico-Acrid Poisons.*—This class of poisons possesses a double action; the one a narcotic, similar to those substances in the preceding classes—the other acrid or irritant, exciting inflammation in the part with which they come in contact, but many of them have very different properties, some exciting tetanic spasms only. Inflammation is not an invariable result. This class is also derived from the vegetable kingdom. Their characters are very similar to those of narcotics; but there are some exceptions, as for example, a single dose of some of them may cause narcotism for two or three days, though they seldom prove fatal as narcotics after twelve hours. The poisonous fungi are exceptions, as they may destroy life like narcotics after the lapse of one, two, or three days. Digitalis has acted as a narcotic, after two or three weeks; and the different species of strychnos have peculiar effects, which cannot be mistaken for the results of disease. The following are the species of this class,—colchicum, white hellebore, squill, digitalis, belladonna, stramonium, tobacco, nerium, œnanthe crocata or hemlock drop-wort, black-hellebore, hemlock, monk's hood, strychnia or nux-vomica, St. Ignatius' bean, strychnia tieuté, which yields the Indian poison, the upas tieute, the strychnia pseudo-kina, and S. potatorum, camphor, cocculus Indicus, upas antiar, poisonous mushrooms and fungi, many species of amanitæ and argaricæ. Orfila divides all these poisons into four groups.

(1.)—*Meadow Saffron, White Hellebore, Squill, Digitalis, Belladonna, Thorn-Apple, Tobacco, Hemlock, Hemlock Drop-Wort, Black Hellebore, and Monk's Hood.*—All the symptoms caused by these vegetables are indicative of irritation in the intestinal canal and cerebro-spinal system. After their injection into the stomach, we observe nausea and vomiting, numerous alvine dejections, and pain in the abdomen. The patients suffer great agitation, some degree of delirium, convulsive motions of the muscles of the face and limbs, the pupil contracted, the pulse small and irregular, and there are piercing cries. In some there is complete narcotism, the pupil is dilated or natural, and insensibility and stupor supervene. The autopsy affords the same characters as produced by the preceding class of poisons.

Colchicum and Squill owe their properties to veratrine. The poisonous effects of colchicum are sometimes observed in cases of gout and rheumatism. The root is most active in spring.

Digitalis, when pushed too far, or when it accumulates in the system, produces nausea, vomiting, giddiness, want of sleep, sense of heat throughout the body, pulsation in the head, general depression, sometimes diarrhœa, profuse sweating, or salivation. In fatal cases convulsions occur. In using this medicine, the gastro-intestinal membrane ought to be healthy, for its poisonous effects produce manifest symptoms of gastro-encephalic irritation.

Belladonna, or deadly nightshade, produces a train of symptoms that can scarcely be mistaken. No matter to what tissue it may be applied, whether to the skin round the eye, to the stomach, or to the surface of a wound, there is dilatation of the pupil, and if the dose is poisonous, there is a sense of dryness in the throat, delirium and coma. According to M. Barbier, of Amiens, the symptoms are dryness of the throat, thirst, efforts to vomit, cardialgia, colic, eyes haggard, pupils dilated, confused vision, delirium, difficulty of remaining standing, sardonic laugh, trismus or lock-jaw, difficult deglutition, continual agitation, convulsions, subsultus tendinum, rigidity of the back, convulsive motions of the heart, oppression, gangrenous spots on the skin, pulse small and contracted, perspirations, lipothymia or sudden cessation of the heart's action, coldness of the extremities, and death. These symptoms depend more upon the nervous system than on the digestive canal. M. Flourens concludes, from this semeiology, that the tubercula quadrigemina are affected, and become the seat of sanguineous effusion. It is right to mention that the delirium is in some cases accompanied with immoderate and uncontrollable laughter, at other times with incessant loquacity, and again with complete loss of voice. The sufferer may follow his ordinary vocation, as happens in somnambulism. The effects of this poison do not disappear so soon as those of opium. In one case the morbid appearances were rapid putrefaction, tumefaction of the abdomen, distension of the penis and scrotum, with fœtid serum, softness of the brain, and dark vesicles on the skin. In another case there was no unnatural appearance. The best proof of poisoning by this plant, is the detection of its berries, husks, or seeds in the alvine dejections. The berries are so tempting that children and adults very often eat them, and their juice has been mixed with wine. (See *Adulteration of Aliments.*)

Stramonium, or thorn-apple, is seldom used in this country as a poison; its effects are delirium, dilated pupil, stupor, and occasionally palsy. The physician should recollect these effects when his patient has been smoking this plant for the relief of asthma. It has been used on the continent of Europe for the purpose of facilitating the accomplishment of female violation, and other atrocious crimes. Ardent spirits and opium are more generally exhibited for these purposes. In cases of poisoning by thorn-apple, there is great cerebral congestion, and hence venesection is necessary.

Tobacco.—Though this plant is almost universally employed as a luxury, either by smoking or snuff-taking, it is a very potent poison when used too freely. Young smokers are affected with nausea, giddiness, sudden fainting, or disorder of the intellectual faculties, with quivering pulse. These effects are generally transient, but examples are recorded in which these symptoms were followed by stupor, somnolency, and death. The usual symptoms may continue for twenty-four hours, and then gradually disappear. Death has been produced by a clyster, composed of two ounces of tobacco leaves, infused in eight ounces of water. The bad effects may be induced by the application of a leaf to an abraded surface. I have observed this fact in a case of ulcer of the leg, and in cases of excoriated nipples to which an ointment of the leaves was applied. It appears from reports made by several physicians in France, that the men employed in the manufacturing of snuff are in good health, but they are liable to headach and diseases of the lungs and stomach in this country. (Thackrah.)

Hemlock.—The root of this virulent poison has been often mistaken for parsley, fennel, asparagus, and most frequently for parsnip; the effects on man are similar to those of opium, belladonna, and thorn-apple, but its irritant action is not established. The aquatic hemlock is the most active. Giddiness, coma, and convulsions are the usual symptoms excited by it, the pulse may be reduced to thirty, and the recovery similar to that after the opium. The autopsic characters are, congestion in the head, fluidity of the blood, it often escaping at the nose, and much cadaverous lividity. Examples are detailed which arose from persons mistaking the root for parsnip, and using the leaves with other herbs in making broths.

Œnanthe Crocata.—Hemlock drop-wort is often mistaken for common hemlock by herbalists, which is a matter of serious consequence, as a dose of the extract prepared from it may prove fatal. The bad symptoms induced by it are heat in the throat and stomach, delirium, stupor, slight coma, but generally convulsions, and death may take place from one to three hours. The root is often mistaken for water parsnip. Others affirm that its effects are little different from those of belladonna.

Æthusa cynapium, or fool's parsley, has been mistaken for common parsley, and has been mixed up in salad, when it produced nausea, vomiting, head-ache, giddiness, somnolency, pungent heat in the mouth, throat, and stomach, difficulty in swallowing, and numbness of the limbs.

Aconitum napellus, or monk's hood, is seldom used as a poison. The leaves are less poisonous than the root, and the resinous is more active than the watery extract. In some cases narcotism, and in others the characteristic effects of pure acrids are observed. Fatal effects have been caused in France by the spirituous infusion or tincture of the root, as will be seen in Christison's work on Poisons.

Helleborus niger, or Christmas Rose, was considered by the ancients as a specific for mental alienations. It is a violent narcotico-acrid poison. The symptoms caused by it are nausea, vomiting, the circulation is arrested, the respiration constrained, the tongue is protruded and pendant from the mouth, vertigo and trembling seize the animal, which tumbles on its side and expires with tetanic convulsions, with opisthotonos or emprosthotonos.

The morbid appearances are inflammation in the digestive canal, especially in the large intestines, the lungs are gorged with blood, or are hepatised and red.

(2.) *St. Ignatius' Bean, Nux Vomica, Upas Tieuté, Strychnine, and False Angustura.—St. Ignatius' Bean* is a species of strychnos, and contains three times as much strychnine as nux vomica, according to Pelletier and Caventou. The powder of half a bean, which is about the size of an olive, was taken in brandy, and induced tetanus of several hours duration.

Upas Tieuté is a species of strychnos, and is supposed to be the most active of the Japanese poisons. It is nearly as powerful as strychnia.

Nux Vomica is another species of this genus, and causes death by prolonged spasms of the thoracic muscles of respiration. These muscles may be felt during the fits as hard as bone. These spasmodic fits extend to the whole muscles of the body, and death may occur in the space of one hour, or the person may be affected for twelve hours with milder spasms. The smallest dose which is said to have yet proved fatal, is three grains. The muscles remain rigid in some cases for five hours after death. This state of rigidity does not invariably occur. When the patient is not attacked with spasms for two hours he is generally safe. Half a drachm of the powder may induce death. I have been lately asked by a wholesale and retail druggist, could half an ounce of nux vomica cause death, as he had sold that quantity to a female, who swallowed it, and died with the symptoms already described. When the powder is taken, we should use the stomach-pump, or in its absence emetics, and always recollect, that the poison adheres with great obstinacy to the coats of the stomach. The sudden appearance of the spasms enables us to distinguish them from ordinary tetanus, which, in general, comes on slowly, and is preceded by some symptoms of constitutional derangement. The spasms from nux vomica come on within an hour, or even less. Poisoning by this substance, unless when given in the form of strychnine, is comparatively rare.

Strychnine is the active principle of the preceding poison. It is nearly as powerful a poison as hydrocyanic acid. A sixth of a grain injected in an alcoholic solution into the chest of a dog, has proved fatal in two minutes. (Christison). In fifteen seconds it begins to act, the animal trembles, and is next seized with stiffness of the limbs. General spasm soon supervenes, the head is bent back, the spine stiffens, the limbs are extended and rigid, and the respiration is constrained by the fixation of the chest. The fit is succeeded by a calm, during which the senses are perfect, several fits take place, and the animal is destroyed by suffocation.

Brucea, or false angustura bark, produces the same symptoms as nux vomica.

(3.) *Camphor, Cocculus Indicus, its Alkali (Picrotoxine), and Upas Antiar.—Camphor.* Two scruples of this medicine, taken into the stomach in a dose, produced languor, giddiness, confusion, and forgetfulness, in the short space of twenty minutes. Loss of consciousness, convulsions, and maniacal frenzy supervened, which were removed by an emetic, as this caused the rejection of the drug, though taken three hours previously. In another case, half a drachm was used as a clyster, which was soon followed by indescribable uneasiness. The patient experienced a sensation as if his body was lighter than usual, he staggered, became pale and chilly, and felt a numbness of the scalp. On taking a glass of wine he became better, and for twenty-four hours his breath exhaled a camphorous odour. My friend, Mr. Matthews, of Hunter-street, consulted me in a case in which there was a sense of numbness in the scalp from the use of this medicine, which always occurred whenever the remedy was exhibited. A man, who took one hundred and sixty grains, recovered without an emetic. The Italian physicians are of opinion, that camphor acts specially on the genito-urinary organs, induces erection of the penis, voluptuous reveries, and a sense of heat in the urethra, during the passage of the urine. That vertigo, vivid impression on the eye, head-ache, acceleration of the circulation, and excitation of the genito-urinary organs, announce its action on the brain, cerebellum, and great sympathetic, and that its action is increased by alcohol, and diminished by nitre. (Annali Universali de Med. Juin. 1829.) This medicine is generally supposed to diminish the generative functions. The morbid appearances are injection of the membranes of the brain, inflammation of the stomach and intestinal tube, of the ureters, urethra, and spermatic cords; and every organ in the body exhaling a strong camphorous odour.

Cocculus indicus is very much used by brewers to economise hops, contrary to the laws of this country. It is seldom dangerous in the proportion used in manufacturing fermented liquors. It causes vertigo, pallidity of countenance, and tetanic spasm. It contains an alkaloid named picrotoxine.

Upas antiar is a Japanese poison, which is often mistaken for the upas tieuté. It acts like camphor and cocculus indicus. M. Andral states, that it induces clonic convulsions, with relaxations, inflammation of the stomach if injected into the veins; phenomena which are not observable from upas tieuté. (See *adulteration of Aliments*).

(4.) *The fourth group of Narcotico-Acrid Poisons includes the poisonous Mushrooms or Fungi.*—Of these the most deleterious are, amanita muscaria, alba, citrina, and viridis, the hypophyllum maculatum, album-citrinum, tricuspidatum sanguineum, crux melitense, pudibundum and pellitum, the agaricus urens, necator, pyrogalus, stypticus, annularus, and semiglobatus. Such is the number mentioned by Orfila and Christison. Dr. Greville, of Edinburgh, describes twenty-six species of eatable mushrooms, but few of these are used. Richard informs us that, as a general rule, we should reject those whose taste and smell are disagreeable, those that grow in shady and moist places, those whose taste is bitter and astringent. Poisonous fungi produce narcotico-acrid effects; sometimes they cause narcotism alone, and sometimes irritation, but most commonly both. The symptoms and morbid appearances have not been fully detailed. The sufferer complains, in a few hours after his repast on these substances, of nausea, heat in the abdomen, and severe continued pain. Frequent vomiting and purging supervene, there is insatiable thirst, and the pulse is small, hard, and frequent. After some time, general or partial convulsions come on, cold perspiration, drowsiness, though the consciousness remains perfect in general to the time of death.

On the autopsy, numerous spots, of a violet colour, are observed on the skin, the abdomen is distended, the stomach and intestines are gangrenous in many points, and affording marks of the most intense inflammation, the intestinal tube is very much contracted, the other viscera congested, presenting points of inflammation, and the membranes of the brain, the pleura, the lungs, and uterus, are disorganized.

Secale cornutum, or spurred rye, when mixed with flour in large quantities, has caused violent spasmodic convulsions, and in others dry gangrene, and these effects do not occur, at the same time, in the same individual. Two drachms taken at once have caused giddiness, head-ache, flushed face, pain and spasm of the stomach, nausea, vomiting, colic, purging, weariness, and weight in the limbs. The French writers divide the effects of this substance into convulsive and gangrenous ergotism; in the latter, the feet, hands, nose, and ears, are affected. It is now admitted by all scientific obstetricians, that the ergot possesses the power of exciting uterine contraction, and of accelerating labour. In my work on Obstetricy, I have given a full account of the circumstances under which it is useful. I am as satisfied of its power, as I am of that of any medicine in use. It must be properly preserved, or it becomes inert; and inattention to this fact accounts for its repeated failures. I find one drachm sufficient in any case, and this should be given in three doses, either in decoction, infusion, or powder. We should not exceed a drachm and a half, under any circumstances. It is also an astringent in active hemorrhages, in hemorrhœa, and gonorrhœa, in doses of three grains every four hours.—See my *Formulary of Hospitals*, 1835.

5. *The last group of narcotico-acrid Poisons includes Alcohol and Ether.*—The inebriating effects of these alcoholic liquors are so well known, as to require no elucidation. After death the brain will be found congested.

Septic or Putrefiant Poisons.—Under this head are included cantharides, poisonous fish, venomous serpents, decayed and diseased animal matter.

Cantharides, Blistering Fly.—This substance exerts a special influence on the genito-urinary organs. In large doses it may produce priapism, and excite the venereal appetite, and in some instances it affects the kidneys and the bladder, induces strangury, and no sexual appetite. In some cases it produces no effect on the urinary organs; and whenever it does, such violent constitutional symptoms arise as endanger life. When swallowed in large doses it causes irritation and inflammation along the gullet, stomach, and intestinal tube, and generally in the genito-urinary organs. The quantity of the powder or tincture which may prove fatal, is not accurately determined. The treatment should consist in emetics, demulcent and oily injections into the bladder, if that organ is affected, and antiphlogistic measures when indicated.

Poisonous Fish.—From idiosyncrasy, or peculiarity of constitution, several of the fishes are poisonous to certain individuals: as oysters, crabs, lobsters, mackerel, muscles, turbot, herring, eels, salmon, &c. The symptoms are indicative of local and nervous irritation. In some persons there is an eruption like nettle-rash, in others a coma or a partial paralysis. In some there are epileptic convulsions and irritation of the stomach. The poisonous qualities of fishes are not determined.

Venomous snakes and insects inflict fatal injury on the human system, but such cases can seldom require attention from the medical jurist.

Poisoning by decayed or diseased Animal Matter.—Under this head the medical jurist should consider the diseases caused by infection, contagion, and inoculation; but these subjects are excluded from toxicology, as they belong to state medicine, and will be discussed hereafter.

The flesh of certain animals is sometimes poisonous, as partridge at certain seasons; even honey is sometimes poisonous; and the danger arising from dissection-wounds is too well known to require notice in this place. The adulteration of the different kinds of food claim the attention of medical practitioners, and are to be learned from the next chapter. Several eminent anatomists, as Mr. Dease, and Mr. Shekleton, of Dublin, and many others, have lost their lives by dissection-wounds; though numbers have recovered from them.

General Precepts with respect to medico-legal Researches on Poisoning.—The first axiom laid down by the best jurists is, that we cannot affirm whether poisoning has taken place unless we can demonstrate the poison. The questions are, 1st, has poisoning taken place? 2nd, what is the poison? When we answer the first question, the second presents itself as a natural consequence.*

The greatest caution is required in giving evidence upon these points, as innocent persons have been executed, and the guilty have escaped, by the conclusions of medical witnesses. We should remember, that many diseases simulate poisoning, as cholera, spontaneous perforation of the stomach, ileus, strangulated hernia, hæmatemesis, &c.

In making the autopsy or post-mortem examination, as it is absurdly denominated in this country, we should apply a ligature on the gullet, and another on the rectum, besides one on each orifice of the stomach, so that in removing the whole digestive tube, its contents may be obtained; great care will be requisite in removing the parts, lest incisions or perforations should be made. The contents of the digestive tube should be placed in a glass or porcelain vessel; while the appearances, both external and internal, of this tube must be carefully noted, and then the part is placed in alcohol. We have next to apply the chemical and physical tests, the latter afforded by physiology, pathology, and experiments on living animals. Many of the vegetable poisons may be detected by their physical properties, and we should refer to the special history of those which are most commonly employed by persons in the rank of life of the accused party, or the deceased. Our tests should be of the purest and best description, and we begin our experiments upon small quantities of the suspected matter, reiterate them and vary them, so as to justify our conclusions in the most satisfactory manner. We should preserve the results of each experiment, in order to procure the quantity of poison, however small that may be, in each portion of the matter examined. We should never communicate our opinion to a magistrate or other persons, unless given in evidence, more especially if it is unfavourable to the accused.

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* Vegetable Poisons cannot be detected by chemical analysis.

In all cases of poisoning, we should endeavour to discover whether the act is one of suicide or homicide. The age of the deceased, his state of health and intelligence, will assist us in arriving at a safe conclusion. Moral evidence will often afford us assistance, and when the prisoner had been dabbling with the poisons, conversing about them, though not acquainted with them by profession; when he has purchased poison shortly before the death has taken place, and under false pretences, for poisoning rats, for which purpose he has not applied it; when his conduct has been suspicious during the illness of the deceased, such as preventing medical aid being procured, not leaving the patient, attempting to remove or destroy articles of food or drink, or vomited matter, expressing a presentiment of the patient's speedy death; hastening the funeral, opposing the examination of the body, giving a false account of the illness, having quarrelled with deceased, or acquired property by his death, or relieved from his support, or his knowing that the deceased was pregnant by him. We must collect the phials, pill-boxes, and papers, which are found in the apartment of the deceased. The symptoms in every case are to be ascertained; the indications from the autopsy, the chemical analysis, and the physical properties afforded, are to be duly considered, as also the diseases which simulate the effects of the supposed poison. Such are the leading points which deserve the greatest attention from the medical jurist in his investigation of cases of poisoning.

POISONS AND ANTIDOTES.

Acids.—Sulphuric acid or oil of vitriol; hydrochloric or muriatic acid; nitric acid or aquafortis; oxalic acid (salts of lemons), often mistaken for Epsom salts.—*Antidotes and treatment.* Chalk, magnesia, or the plaster of the apartment made into a paste with water. Solution of soap; diluents before and after the administration of the antidotes.

Acid, hydrocyanic or Prussic; laurel-water and cyanuret of potassium.—Cold affusion; inhalation of diluted ammonia, or chlorine.

Antimony, Tartar Emetic.—Administer large doses of warm water to induce vomiting; give the powder of Peruvian bark, and, as soon as it can be prepared, the infusion of bark, which decomposes the tartar-emetic.

Arsenic (the white oxide).—The hydrated tritoxide of iron, in a dose thirty times greater than that of the poison.

Baryta (the oxide, the muriate, and the carbonate.)—Sulphate of magnesia, sulphate of soda, or any alkaline or earthy sulphate.

Cantharides.—Emetics if required, demulcents, leeches, and bleeding. When strangury is produced by a blister, Sir B. Brodie recommends the application of goldbeater's leaf under the plaster, which, he says, obviates this inconvenience without lessening the usual action of the cantharides.

Sulphuretted Hydrogen, Carbonic Acid (in brewer's vats, &c.) *Fumes of burning charcoal.*—Free exposure to the air, moderate blood-letting from the arm or from the head.

Copper. Blue Vitriol and Verdigris (Sulphate and acetate of copper.)—White of eggs, iron-filings, and ferrocyanate of potassium in solution.

Lead.—Litharge, red lead, white lead, sugar of lead, and Goulard's Extract. In the first or irritant stage, administer sulphate of magnesia, potash, or soda. The phosphate of soda is a good antidote. When palsy supervenes, the regimen must be carefully regulated.

Mercury, the Bichloride (Corrosive sublimate.)—White of eggs is the best antidote, or milk, if eggs cannot be obtained.

Strychnia, Nux Vomica.—Evacuate the stomach with the stomach-pump or emetics. No antidote has as yet been discovered.

Opium, Laudanum.—Emetics of sulphate of zinc (half a drachm or two scruples). The stomach-pump or injections of tartar emetic, must be employed to bring away the poison. The patient should be constantly roused by being dragged about the floor, throwing cold water in the face, and giving ammonia, assafœtida, &c. Bleeding is sometimes required.

Zinc Sulphate (White vitriol.)—Potass in syrup; also cream, butter, and chalk.

CHAPTER X.

ADULTERATIONS OF ALIMENTARY MATTERS.

Mr. Accum, in his meritorious works on Culinary Poisons, gives a comprehensive account of the adulterations of the various foods and drinks which are used by every class of society; and to this valuable production I must refer the reader for the author's details of the sophistication of the necessaries of life. He justly observes, "the traffic in adulterated commodities finds its way through so many circuitous channels, as to defy the most scrutinizing endeavour of individual exertion to trace it to its source." It can, however, be traced to the wine-merchant, the distiller, the brewer, the publican, the druggist, the baker, the tea-dealer, the butcher, the dairyman, and every one else who adulterates an article of food. I shall notice the most common adulterations.

Wines are adulterated with bitter almonds or leaves of cherry-laurel, in order to impart to them a nutty flavour; with sweet-briar, orris-root, clary and cherry-laurel water, and elder flowers, to give a high flavour; with alum, to render young and meagre wines bright; with cake of pressed elder-berries and bilberries, to render faint-coloured port red; with oak saw-dust, or sloes, or husks of filberts, to give astringency to unripe wines; with tincture of raisin-seeds, to flavour factitious port; and with a variety of spices, to render wine pungent.—*(See the Vintner's and Licensed Victualler's Guide*, p. 259.)

It need not be stated, that most of these substances are poisonous. Acetate of lead, or sugar of lead, is added, for fining or clearing cloudy or muddy white wine; the dangerous and fatal effects of which have been described in the article on Mineral Poisons.—(See p. 386.)

According to the Mechanic's Magazine, the analysis of a bottle of cheap port wine was as follows:—Spirits of wine, three ounces; cider, fourteen ounces; sugar, one ounce and a half; alum, two scruples; tartaric acid, one scruple; strong decoction of logwood, four ounces.

The Cape wine generally sold, is composed of drippings of the cocks of the various casks, the filterings of the lees of the different wines in the adulteration cellars, or from any description of spoiled white wines, with the addition of brandy or spoiled cider.

Champagne, Burgundy, Barsac, Sauterne, &c., are poisonous trash, generally manufactured in London. It appears, by a trial which lately took place in the Court of King's Bench, that the scarce and costly Tokay, the Lachryma Christi, and La Crême Divine, are Sicilian wines of an inferior description. Wines are adulterated in the docks; inferior articles, false descriptions, substitutions for the one selected, take place there as frequently as elsewhere.

Potass and lime are added to wine for the purpose of arresting fermentation. These are detected by evaporating the fluid, treating it with alcohol, and adding the hydrochlorate of platina, which causes a yellow precipitate; and oxalic acid forms a white precipitate when lime is present. It is to be recollected, however, that most wines contain a small portion of potass and lime. The salts of lead are detected by adding chlorine, and then successively sulphuric acid, which causes a white precipitate *(sulphate of lead)*, hydrosulphuric acid *(black sulphuret of lead)*, chromic acid or a soluble chromate *(yellow chromate of lead)*. When sulphuric acid is added without chlorine, the precipitate being dried and calcined with caustic potass, a small portion of metallic lead will be obtained. If one part of water, saturated with sulphuretted hydrogen gas, and acidulated with a small portion of muriatic acid, is added to two parts of wine, a blackish precipitate is thrown down, which being dried and fused by the blowpipe, yields a globule of metallic lead.

When white wines are sweet, and their use, or that of red wines, is followed by colic, or pain in the stomach or bowels, it may be concluded that they have been adulterated with lead.

Alum is detected by dropping a solution of subcarbonate of potass into the wine, which will cause a violet coloured precipitate, or a cloudiness, which will disappear by the addition of muriatic acid, or liquor potassæ. If equal parts of lime-water and wine be mixed, a slimy or muddy precipitate occurs when alum is present; and when the wine is genuine, crystals will be deposited in twenty-four hours.

The colouring matters are detected by acetate of lead; when a blue precipitate takes place on its addition, we may suspect the juice of elder-berries, bilberries, or campeachy-wood to be the adulteration; and when a red precipitate, red sanders-wood, beet or fernambouk-wood. When the wine is pure, a greenish gray precipitate is produced. According to Dr. Prout, ammonia causes an olive green precipitate, when wine is adulterated.

Tannin will be discovered by adding a solution of isinglass, when a gelatinous precipitate occurs, whether the wine be port, claret, or burgundy.

Brandy and British Spirits.—Cogniac brandy is imitated by mixing Spanish or Bordeaux brandy, rum, British brandy, British brandy-bitters, cherry-laurel water, almond cake, capsicums, grains of paradise, burnt sugar, or other colouring matter.

British brandy is a compound of gin, oil of vitriol *(sulphuric acid)*, nitrum dulce, or nitrous ether. The gin, rum, or whisky, is first distilled, and then the deleterious ingredients are added.—*(The wine and spirit adulterators unmasked.)*

Jamaica rum is manufactured in "Modern Babylon," with a bad Leeward Island rum, ale, porter, or shrub, orris-root, cherry-laurel water, grains of Paradise, or capsicums. The ripe taste of old rum or brandy is imparted to new liquor by oak saw-dust or tincture of raisins. The poisonous cherry-laurel-water gives a cordial flavour, and sugar of lead may be included among the ingredients.

Gin, "the real comfort," "the liquid fire," alias "blue ruin," is patronised by the poor of "the queen of cities," for its genuineness. The ingredients in this compound are whisky, water, oils of vitriol, turpentine, juniper, cassia, carraways, and almonds, sulphuric ether, orris and angelica-roots, capsicums, grains of Paradise, sugar, lime-water, spirits of wine, and heading.—(See a work entitled "*Deadly Adulteration and Slow Poison, or Disease and Death in the Pot and in the Bottle, &c.* 1830.")

Brandy is adulterated with pepper, long pepper, capsicum, and stramonium. On evaporating the fluid, the taste of these ingredients becomes more evident. When cherry-laurel leaves have been steeped in brandy, the proto-sulphate of iron, causes a blue precipitate *(Prussian blue)*, or the material from which prussic acid is obtained. When alum is present, chlorine is to be passed through the fluid, then filter and evaporate to a third, and a reddish deposit takes place. When water and alcohol are added to brandy, litmus paper is not reddened, which always takes place if the liquor is genuine.

The adulteration and false strength of spirituous liquors, as brandy, rum, malt spirits, are detected by diluting the liquor with water, when the acrimony of the capsicum, pepper, or grains of Paradise may be easily discovered by the taste.

If we distil a quart of the suspected liquor, the residium, if capsicums or grains of Paradise are present, will retain a hot pungent taste. If chalk is dropped into adulterated liquor, and a milkiness appears, either sulphuric or nitric acid is present, for in genuine spirit the chalk will be at the bottom. The purity of spirits may be ascertained by igniting a quantity of the fluid in a spoon, when, if unadulterated, the whole will burn away without leaving any moisture. Lead may be detected in the same manner, as mentioned when mixed with wine.

Cider and *Perry* often contain lead, which will be precipitated by a solution of molybdate of potass, however small the quantity. A white deposit takes place.

Vinegar, when prepared from wine, gives an abundant precipitate with acetate of lead; and when reduced by evaporation to a fourth or sixth of its volume, deposits systems of supertartrate of potass, or cream of tartar. When vinegar is prepared from cider, it does not possess these characters—it gives a copious precipitate, with oxalic acid and nutgalls; and if evaporated to the consistence of syrup, it affords a residue slightly acid, glutinous, of the odour of apple. When adulterated with sulphuric or muriatic acid, baryta detects the former, and nitrate of silver the latter. But as all vinegars contain sulphates and hydrochlorates, we should experiment upon a quantity of suspected and pure fluid, and compare the results.

Beer and Ale are adulterated with the following poisonous ingredients, according to the evidence laid before the Committee of the House of Commons in 1819:—

Cocculus Indicus, a powerfully narcotic and intoxicating drug, hard multum, a compound of a poisonous Indian berry, opium, &c. nux vomica, and Ignatius' bean, two of the most powerful poisons, opium, tobacco, extract of poppies, henbane, Bohemian rosemary, burnt sugar, and heading, which is green copperas, or sulphate of iron. In the possession of one adulterator, 310lbs. of copperas, and 560lbs. of hard multum, were found and condemned. Capsicums, grains of Paradise, molasses, liquorice-root, wormwood, aloes, bitter oranges, quassia, lime, marble-dust, oyster-shells, hartshorn, &c.—(*Lardner's Cyclopædia—Domestic Economy.* By Mr. Donovan.)

Mr. Child, in his Treatise on Brewing, recommends "a dash of vitriol for making new beer old, and also alum."

Bread and Flour are sophisticated with powdered gypsum, or plaster of Paris, whiting, slacked lime, chalk, finely powdered granite, pipe-clay, particularly white Cornwall clay, flour of garden peas and horse-beans, potatoes, bone-ashes, alum, sulphuric acid, sulphate of copper, subcarbonates of ammonia, potass, and magnesia; alum mixed with salt, is one of the commonest ingredients.

The subcarbonate of potass is used to cause the bread to swell or rise. It is detected by steeping the bread in distilled water for twenty-four hours; the solution is then to be filtered, and will turn syrup of violets green, and give a yellow precipitate with hydrochlorate of platina, and effervesce with nitric acid. When we wish to discover alum, the preceding solution will give a precipitate with ammonia and potass, the sulphuric acid will unite with baryta, and if the solution be evaporated, crystals of alum will appear. Sulphate of copper, or blue vitriol, is obtained by burning the bread to a cinder, and heating it with diluted sulphuric acid. It becomes of a sky-blue by the addition of ammonia, and affords a black precipitate by hydrosulphuric acid; a red one by sulphate of potass; and it deposits a coat of metallic copper on a polished piece of iron. Flour is always mixed with sand, occasioned by the friction of the millstones during grinding; and the quantity which each individual swallows annually is estimated at 6lbs.—(*History of Inventions.*) Good bread is spongy, and will keep for some days, whereas the adulterated description crumbles, and becomes mouldy in a few days. If bread be sliced and boiled slowly, a deposition of the earthy ingredients will be found in the form of white powder on the bottom of the vessel.

Tea is imitated and manufactured in this country with dried leaves of the white and black thorn, elder, birch, ash, &c. and the colouring is effected with catechu, logwood, verdigris, copperas, Prussian blue, carbonate of copper, and Dutch pink. The leaves are boiled, then pressed, and baked on plates of iron, or of copper, and lastly coloured. So far back as 1783, it is stated, in a Report of the House of Commons, that "the quantity of fictitious tea, manufactured from sloe and ash leaves in the different parts of England, to be mixed with genuine teas, was computed at more than four millions of pounds weight." This computation was made when the East India Company sold six millions of pounds annually, and what must it be now, when the Company's sales are about thirty millions of pounds annually? To detect adulterations, a cup of infusion of the article is to be taken, and a grain of sulphate of copper, or blue vitriol, added; when, if it be genuine green tea, a fine blue colour will be produced; if pure bohea, a deep blue, next to black, and if adulterated, a variety of colours, as green, black, yellow, &c. will take place. If, on adding a piece of nutgall, a black colour is produced, we have direct evidence of the existence of vitriol or copperas.

Coffee is imitated by commixing ground acorns, horse-chesnuts, horse-beans, peas, nuts, barley, rice, wheat, parsnips and carrots, and especially by roasting blue succory or rye with a few almonds. All these substances are torrified or roasted.

Chocolate is often adulterated with varilla and castile soap.

Sugar is sophisticated by mixture with lime, chalk, gypsum, plaster of Paris, and various other white materials. Soft sugar is generally mixed with sand.

Milk and *cream* are sophisticated; the former is mixed with water, or the common cheese-dye (annatto), which occasions the mixture to assume the colour and consistence of cream. Skimmed milk and arrow-root, boiled together, are added to cream. Chalk and whiting cannot be added to milk, without precipitation. Molasses and salt are often substituted for the cheese-dye, but do not answer so well. The practice of placing milk in leaden pans to increase the cream, is highly injurious. Milk is often adulterated with starchy or feculent matters, which render it thick, oily, and creamy. Tincture of iodine will cause a yellow precipitate, when the milk is not boiled, but the colour may be bluish or lilac-blue in proportion as the adulteration is considerable. When the fluid is boiled, the precipitate will be blue.

Subcarbonate of potass is added, to prevent coagulation. The alkaline taste and effervescence with acids, and a yellow precipitate with hydrochlorate of platina, enable us to detect this fraud.

Oxide of zinc is added to thicken milk, and is detected by adding sulphuric acid, which causes a coagulation; the fluid is to be strained, and will give a white precipitate by the addition of the alkalies and hydrosulphates; this is to be calcined with caustic-potass and powdered carbon, when a small portion of metallic zinc will be found on the bottom of the crucible.

Confectionery and *Pastry* are so much adulterated as to excite the abhorrence of the faculty. Dr. Paris designates them "an abomination."—(*Work on Diet.*) The white comfits, called sugar-peas, are composed of sugar, starch, and Cornish clay, a species of pipe clay. The red sugar drops are coloured with vermilion or sap-green, red lead, and copper. The cromate of lead is used as a yellow colour, and prussiate of iron as a blue. To the deleterious properties of these substances, I refer the reader to the article Mineral Poisons, as also for the modes of their detection. There is a valuable paper on Poisoned Confectionary, in the *Lancet*, No. 402, 1831, by Dr. O'Shaughnessy, which will be read with advantage by all who desire information on this point. It is well known that the almond-kernel flavour of custards, blanc-mange, &c. is communicated by the poisonous cherry-laurel, which affords so much prussic acid. For further information on the poisonous effects of the adulterations mentioned in this paragraph, I beg to refer the reader to the chapter on Poisons.

Adulteration of Medicines.—There is no country in the world in which medicines are so much adulterated as in this; in fact, it is almost impossible to procure a single article in the Pharmacopœia in a genuine form. The most powerful medicines produce no effects, and the physician is disappointed almost hourly, and the patient's health or life sacrificed. This monstrous state of things is to be ascribed to the supineness and apathy of the Royal College of Physicians and Company of Apothecaries, who are empowered by law to destroy all bad drugs, and to fine all who vend them. But these bodies, unmindful of the solemn duty they owe the public, neglect to exert that salutary power which was confided to them by the legislature, and carelessly witness the incalculable sacrifice of human life, from adulteration of those ample agents which a beneficent Providence has bounteously afforded for the alleviation and the cure of the "many ills which flesh is heir to." If there was no other charge, and there are many, against these bodies but this, it ought to be more than sufficient to transfer their powers into other hands. The farcical inspection of shops, so well described by one of the Fellows of the College, has excited the sorrow and contempt of every genuine friend to medical science.

Let us next turn to the state of charlatanism in this empire, " the land of the good and the wise," where the most ignorant and illiterate persons are allowed, with reckless indifference, to assume the titles and privileges of educated medical men, to the destruction of human health and life. The College of Physicians, the guardians of public health, are too much inflated with pride and vanity to interfere to prevent wicked and inhuman impostors from deluding and ensnaring the giddy multitude, the *ingens turba stultorum* that constitutes the the public. Nay, we have even seen a Fellow of the College defending an ignorant, rash, and daring empiric, a convicted felon, and arguing that this nostrum-monger was a more successful practitioner than the most eminent physicians and surgeons of this metropolis. What encouragement exists for the regular physician and surgeon, who have sacrificed their lives, health, and property, in the study of their profession, when they find themselves superseded by some inspired pretender—some villainous quack? The sanction given to quacks and quackery in this country, has long and loudly been stigmatized by foreign writers, and is a disgrace to the College of Physicians. Most of the vermin that infest this intellectual city are " the lowest of the low"—cobblers, tailors, weavers, painters, footmen, pensioners, &c. &c. generally the most notorious vagabonds in their respective districts. " But unhappily," says an able writer, " it appears that poor John Bull and his family are not gifted with the power of being aware of hypocrisy, advertising chartalans, and empirical nostrums; but through their proneness to gullability and love of the marvellous, the trade of quackery is daily increasing, and some hundreds of quacks swarm in every corner of the metropolis, and fatten on the murders which they are constantly perpetrating with their poisons." Recent examples attest the truth of these remarks. My limits prevent me from prosecuting this ample theme, but I console myself with the conviction, that the time has at length arrived, when medical reform, like parliamentary reform, can no longer be withheld. When the stupid and insane corruptionalists, the medical boroughmongers, if I may be allowed the phrase, will, like their prototypes, be completely annihilated, or compelled to swallow a pill, as bitter and as potent as that marvellous discovery—the Reform act.

CHAPTER XI.

MEDICO-LEGAL QUESTIONS RELATING TO MENTAL ALIENATION.

The medico-legal questions relating to mental alienations are, according to Professor Amos, late of the London University, three in number; 1. whether a person be competent of manage his affairs; 2. whether he ought to be discharged from criminal responsibility; 3. whether his will and testament be a good will and testament. "Insanity means a very different thing in the English language, according as it is spoken of with reference to these different inquiries."

1. *Whether the Person be competent to manage his Affairs?*—Lord Chancellor Hardwicke held, that "unsound mind was understood by courts of law, importing not weakness of understanding, but a total deprivation of sense."—*Collinson on Lunacy.*

Lord Eldon held the opposite opinion. "Of late," says his lordship, "the question has not been, whether the party is insane; but the court has thought itself authorized (though certainly many difficult and delicate cases, with regard to the subject, occur upon that), to issue the commission (*de lunatico inquirendo*), provided it is made out that the party is unable to act with any proper and provident management, liable to be robbed by any one, under *imbecility* of mind, not strictly insanity, but, as the mischief, calling for as much protection as actual insanity."—8 *Vesey.* Lord Lyndhurst reversed this verdict, "that the party was not a lunatic, but partly from paralysis, and partly from old age, his memory was so much impaired as to render him incompetent to the management of his affairs; and, consequently, that he was of unsound mind, and had been so for the term of two years."—4 *Russell's Rep.* 183.

"In these cases of commissions of lunacy," says Mr. Amos, "the jury are to find the party either of sound or unsound mind." But this state of soundness of mind, in the legal sense of the present day, is perhaps not very easy to define, for it is neither lunacy, idiocy, imbecility, or incompetency to manage affairs. It however always involves the idea of unfitness to manage a person's affairs. The term unsoundness of mind,therefore, in its legal sense, seems to involve the idea of morbid condition of intellect, or loss of reason, coupled with an incompetency of the person to manage his own affairs. "Soundness of mind is a legal term, the definition has varied, and cannot, even in the present day, he stated with any thing like scientific precision."—*Lectures on Medical Jurisprudence, Medical Gazette, July*, 1831, v. 8., p. 419.

2. *Whether a Person ought to be discharged from Criminal Responsibility?*—To determine this question, the medical witness is usually asked, "whether the person has a sense of *right* and *wrong?*" Mr. Amos thinks, this a question for the jury, and not for the medical jurist, who, in general, confines his investigation to the discovery of the sanity or insanity of the person. This is generally true, though in the course of examination of the supposed lunatic or maniac, the medical jurist may learn, from his conversation, his opinions on good and evil, right and wrong. "The kind and degree of insanity," continues Mr. Amos, "which renders a person irresponsible for criminal acts, is a subject upon which it is impossible to give you any precise and scientific notions."—*Op. cit.*

3. *Competency of Insane Persons in Civil Cases.*—I shall next consider the liability of lunatics for their civil contracts. Lord Tenterden decided that a lunatic (Lord Portsmouth), was responsible for goods sold him by a tradesman, such goods being suitable to his condition, and his insanity being unknown to the plaintiff.—5 *Barn. & Cresw.* 172; and in a similar case, 1 *Moody & Malkin*, 105. The Ecclesiastical

Courts have allowed a person who was a lunatic, and had contracted a marriage in that state, to have a divorce on his recovery.—1 *Haggard*, 414.

The following lucid exposition of the difference between the responsibility of lunatics or insane persons in civil and criminal cases, by Sir John Nicoll, judge of the Prerogative Court, fully accords with the received opinions of medical writers:—

"As far as my own observation and experience can direct me, aided by opinions and statements I have heard expressed in society, guided also by what has occurred in these and other courts of justice, or has been laid down by medical and legal writers, the true criterion is—where there is delusion of mind there is insanity; that is, when persons believe things to exist only, or, at least, in that degree exist only, in their own imagination, and of the non-existence of which neither argument nor proof can convince them, they are of unsound mind; or, as one of the counsel accurately expressed it, 'it is only the belief of facts, which no rational person would have believed, that is insane delusion.' This delusion may sometimes exist on one or two particular subjects, though, generally, there are other concomitant circumstances—such as eccentricity, irritability, violence, suspicion, exaggeration, inconsistency, and other marks and symptoms which may tend to confirm the existence of delusion and to establish its insane character. The law then does recognize partial insanity in the sense already stated; and in civil cases, this partial insanity, if existing at the time the act is done—if there be no clear, lucid interval, invalidates the act, though not directly connected with the act itself; but, in criminal acts, it does not excuse from responsibility, unless the insanity is proved to be the very cause of the act."

A man deranged upon some or many subjects may execute a bond, which the solicitor and witnesses proved to have been executed with caution and perfect competency, though the person so doing acted on other points in the most insane and extravagant manner. The jury found that the bond was valid.—*Law Magazine*, No. VII.

"If a person," says Dr. Haslam, "is capable of enumerating progressively to ten, and knows the force and value of the separate units, he may be pronounced fully adequate to the management of property; if he can comprehend that twice two compose four, he can find no difficulty in understanding that twice ten constitute twenty, or that so many taken from or subtracted from ten, would leave so many as the remainder. Without such capacity, no man, in my opinion, could understand the nature of property, which is represented by pounds, shillings, and pence."

A person habitually insane may have intermissions or lucid intervals, during which he may make his last will and testament, which will be valid. The principal judicial decision upon this point is the judgment of Sir W. Wynne. "Now I think the strongest and best proof that can arise of a lucid interval, is that which arises from the act itself (the making of a will), that I look upon as the thing to be first examined; and if it can be proved and established that it is a rational act, rationally done, the whole case is proved. Because suppose you are able to show that the party did that which appears to be a rational act, and it is his own act entirely, nothing is left to presumption in order to prove a lucid interval."—1 *Phillimore*, 100.

It is however extremely difficult to prove the existence of a lucid interval. According to Dr. Willis, the man is not of sane mind until he acknowledges his delusion, the validity of which opinion is fully proved by reference to works on insanity and medical jurisprudence.

The medical jurist should recollect that the state of health and of mind of a person making a will is to be proved by him, in the event of such will being disputed. He should always note in writing his opinions on those points as soon after his return home as possible. I have observed men in articulo mortis, in a state of slight stupor, from which they were roused by being spoken to in a strong voice, called upon to sign their wills; cases in which the patient relapsed into his stupor at the interval of five or ten seconds; and I have known one man sign his name under such circumstances. The will was not read to him, but he was told by his nephew and the solicitor that it was prepared according to his instructions. I stated that he certainly was not in a disposing mind, for he would sign any document presented to him; in a word, I considered him incompetent, for he had neither "sound mind, memory, nor recollection."

In a former page the law respecting certificates for the confinement of insane persons has been stated, but it is necessary to add a recent decision upon that point. A medical man is not warranted in granting a certificate for the confinement of an insane person, on the representation of relations, without having examined such person according to the statute, unless he is satisfied upon such statements that such a step is necessary, to prevent some *immediate injury* from being done by the individual either to himself or to other persons; and if access cannot be had for the purpose of examination, application should be made to the Lord Chancellor, that the party may be taken up under his authority.—*Anderson v. Burrows*, 4, *Carrington and Payne*, 210. In this case the plaintiff was confined by the certificate of Dr. Burrows, who had not visited him, according to the statute, and he was awarded £500 damages.

The symptoms of mania and the various shades of mental alienation are so minutely described in monographs, that I need not detail them in this place. The general opinion of physicians is that the following mental affections exonerate individuals from responsibility:—delirium, epilepsy, loss of self-consciousness, idiocy, dementia, mania, monomania, and somnambalum; inebriety produces delirium, but intoxication will not be received in palliation of a criminal act, as it is a voluntary act of the party. Monomania is a palliation, as exemplified in the case of Martin, the incendiary of the York Cathedral; and also in the case of the individuals who attempted to assassinate King George III., King William IV., and the Duke of Wellington when prime minister.

The law of every civilized nation enacts, that an infant, before the age of reason, or a demented individual, cannot be held responsible for his acts, whether civil or criminal.

Moral liberty, or the faculty of acting or not acting, on due comparison of motives, is one of the characteristics of sanity, and cannot disappear without a complete abolition of consciousness and mind; but it may be vitiated when the motives are bad, or imperfectly appreciated, or when they are not estimated at their proper value.

The general term of dementia, or rather of mental affections, comprises two distinct classes of disorders; first, when the individual loses consciousness of right and wrong, or of his acts; secondly, when he can distinguish between right and wrong, and does not possess the principal characteristics of humanity, is morally insane, as the idiot or demented man; thirdly, when some motive acquires a very extraordinary power over him who is generally considered sane, which destroys the natural antagonism, thus perverts the judgment, and may involve the individual in the commission of crime. Thus somnambulism, inebriety, delirium, epilepsy, and loss of consciousness, as when a man supposes himself dead, &c.

Idiotism, idiocy.—Amentia the term applied to those who are born fools, or to those whose minds are annihilated by epilepsy, mania, or other diseases. *Dementia* is accidental or senile idiocy, childishness, or doting.

Mania is defined disorder of the intellect, in which there is erroneous judgment or hallucination, that impels the individual to acts of folly or fury.

Monomania is that form of mania, in which the individual is insane on one point.

The Court of Chancery most properly protects insane individuals and their property, from the cupidity of relatives and others. The commission under this Court will inquire whether the consignment of the insane to an asylum, and the appointment of trustees, ought to be temporary or permanent. This leads to the prognosis. The proportion of recoveries in the large hospitals in this country is about two three-fourths in five, and on the continent scarcely more than two in four. The chance of recovery is greatest in young persons, for few recover over the age of sixty years. Lunacy is more frequent in females than in males. It is also supposed that celibacy favours insanity—thus, out of 1726 females lunatics, 980 were single women, 397 married, and 291 widows; out of 764 males, 402 were single, 201 married, and 59 widowers.

It is a fact that separation of the insane from their families is necessary and indispensable, it removes old associations, and excites new impressions on the mind. Experience has proved the advantage of separation by the more speedy recovery of the patient.

The insane are more violent and unruly at home and among their relatives, whom they consider as enemies, than among strangers; and every thing around them contributes to exasperate and confirm their erroneous impressions. But the presence of strangers almost always diminishes or suspends the delirium or hallucination of the insane, and aids the influence of new impressions, which are so highly beneficial to a cure. In fine, the private asylums afford the most ample means for the amusement of the mind and its restoration to a sound state; and there is the constant attention and humanity paid by the heads of some of these establishments and their domestics. In proof of this statement I may observe that the most eminent physicians and surgeons patronise such institutions, and justice obliges me to mention two, which have the highest claim on public and professional attention and support: Dr. Tuke's asylum at Homerton, Hackney, and Mrs. Bradbury's, which is exclusively for females of all ranks, at Earl's Court House, Kensington, both of which are most judiciously managed. There are many other equally well conducted asylums in different parts of this kingdom, but I speak of the former from personal observation.

It is enacted by the 3d, 4th, 5th, and 6th William IV., that the Lord Chancellor is to appoint three individuals, two of whom shall be physicians and one a barrister at law, to be visiters, and to superintend and report to him on the cure and treatment of persons found idiots, lunatics, and of unsound mind, by inquisition. Every institution is to be visited at least once a year, or as often as the Lord Chancellor shall deem expedient.

Each of the medical visiters is allowed a salary of £500 a year, and the legal visiter £300, with travelling expenses.

The medical visiters are Dr. Macmichael and Dr. Southey, the legal, W. Phillimore, Esq. The visitations of these officers are generally made without previous notice, so that every care is taken of the unfortunate inmates of both private and public asylums. There are similar laws in force in Scotland and Ireland.

The 46 George III. and 1 and 2 George IV. (the Right Honourable Spring Rice's Act), authorizes the lord-lieutenant to order any number of asylums for poor lunatics to be erected and established in different districts in one town, city, or county, each institution to be capable of containing from 15 to 50 patients. These acts are confirmed and improved by the 6 George IV.

The reader will find a full account of the laws relating to public hospitals, &c. in Ireland, in Mr. Phelan's admirable work on *Medical Charities of Ireland*, 1835.

It behoves the medical jurist to be well acquainted with the symptoms of mental alienation, as this condition is often feigned for the purpose of evading punishment. In such cases we should learn the history of the individual, hold frequent conversations with him, have him watched when alone, for if he feigns his malady, there will be no signs when the pretender is alone: the real lunatic denies his condition during a lucid interval; the person who assumes disease never wishes to conceal it. The pretender cannot prevent sleep for any length of time, the maniac is unaffected by watchfulness. There is a kind of reflection and hesitation in the discourse of the pretender; his wild ideas do not succeed each other with such rapidity as in a maniac. The threat of severe punishment as flogging, the application of red iron, unless the patient is better next day, will have no effect upon the maniac, but will cure the pretender.—*(Zacchias, Foderè, Beck, &c.)*

On the other hand, insane persons *conceal* their condition to escape confinement; the cunning and dissimulation practised on such occasions are really surprising.

Some remarkable cases of this kind are narrated in the systematic works on Forensic Medicine. In one case, a maniac was silent on his hallucination, notwithstanding the severest examination of counsel; and the public could not be persuaded that such a person was insane. But when he is closely watched by his ordinary or medical attendants, he will, in general, be easily detected.

CHAPTER XII.

OF SIMULATED, DISSIMULATED, PRETENDED, AND IMPUTED DISEASES.

A *simulated* disease is that which a person feigns to have; a *dissimulated*, that which he endeavours to conceal; a *pretended*, when he wishes to gain an advantage; and an *imputed*, when the person is supposed to have a disease with which he is not affected.

1. *Simulated diseases.*—The most common causes which induce persons to feign diseases are—exemptions from military service, mendicancy to excite commiseration, and the fear of punishment. Revenge, and the hope of receiving exorbitant damages, induce some persons to magnify slight diseases. Prisoners and soldiers will bear the most active and long-continued treatment, even amputation of a limb, to effect their discharge. In all suspected cases, we should consider the circumstances in which the person is placed, the motives which influence him, his age, habits, and general health, if the disease accords with his age, temperament, and the causes assigned. In these cases, there is an aversion to medicine, or a misapplication of it. This sometimes occurs in real illness, but it rarely happens when severe pain is present.

Amaurosis.—This disease is often feigned by soldiers, and the fraud is with difficulty detected. Though the pupil in amaurosis is generally insensible to light, there are exceptions; but the pupil, in the latter case, is not so sensible as in the former. In all doubtful cases, the patient should be frequently examined.

Myopia, or short-sightedness, is in some measure acquired by wearing convex glasses. The real myopes can read with concave glasses only; and this fact enables us to detect imposition. Percy and Laurent asserted the contrary.

Deafness can be simulated so well, that it is almost impossible to detect the fraud. Foderè and others relate cases, which defied detection.

Pretended ophthalmia is induced by introducing foreign matters into the *right* eye. This was observed by Dr. Vetch, in several cases in the 28th regiment.

Contractions of the joints, especially of the hands and feet, are often feigned, for the purpose of evading military duty. The diseased joint should be compared with the healthy one, when the fraud may be discovered. Mr. Marshall relates cases that escaped detection, even by the most talented surgeons; and Dr. Cheyne another.

Incontinence of urine, when feigned, is readily detected, by placing a ligature on the penis, and having the person closely watched. In the real disease the penis swells in a short time, while in the simulated this does not readily happen. Again, if a catheter is passed into the bladder, in the middle of the night, urine will be detected. A large dose of opium will prevent the bed from being wetted.

Wounds and ulcers are produced by mendicants to excite commiseration; and by soldiers and sailors to procure their discharge. In the latter cases, a strict attention to hospital discipline will enable the practitioner to form a correct opinion. Examples of amputation might be cited, illustrative of the determined obstinacy of soldiers, in the cases under notice. Artificial ulcers are superficial, and generally heal by ordinary treatment, as there is no constitutional derangement. —(Hennen, Copeland Hutchinson, &c.)

Cancer of the breast has been feigned, and represented by gluing a piece of spleen over the part.

Epilepsy is often pretended, and is generally excited in the presence of strangers. On announcing, during the paroxysm, that large incisions are to be made, the actual cautery applied, or castration, or amputation performed, the fit is soon terminated, and does not recur. The real epileptic is unconscious during the fit. After a fit of the real disease, the patient is languid and dull, and complains of vertigo or great weakness. Sleep usually supervenes. Sternutatories, ammonia, &c. have no effect. The reverse of all this will be observed in pretended cases. However, a person intent on imposture, may resist every application, except the actual cautery, or fire. The real epileptic conceals, or wishes to conceal, his infirmity; the feigned talks of it publicly. This disease is often feigned to escape military flogging.—See *Marshall, ut infra*.

Convulsions, chorea, catalepsy, syncope, and hysteria, are best detected by proposing the application of red iron during the next attack.

Hæmorrhoids have been imitated with the bladders of rats, inflated and filled with blood; hæmaturia, by injecting blood into the bladder, or mixing it with the urine when voided; hæmoptysis by wounding the gums or pharynx; hæmatemesis by swallowing the blood of chicken or other fowls. Attentive watching, and the due consideration of the symptoms, habit, age, &c., will enable us to arrive at a proper decision.

Mendicants have inflated the cellular membrane of the head to imitate hydrocephalus, and have pretended to be dropsical. Every attentive practitioner is now enabled to discover dropsy, and also pretended pregnancy.—See PREGNANCY.

2. *Dissimulated diseases* are amplified by those who conceal their maladies, or who aggravate slight affections to acquire heavy damages or obtain revenge. Females have injured the genitals, in order to accuse a certain person of having committed rape; and persons who have been assaulted, very often pretend they are much worse than they really are. Soldiers aggravate diseases to escape the performance of their duty. The attentive examination of symptoms afford proof of the correctness or incorrectness of all such assertions.

3. *Pretended diseases* are urged by those who wish to escape the duty of jurors, witnesses, or of soldiers. Deception can scarcely be practised in this way in the present state of science. It is a dereliction of public duty in a medical man to grant certificates for the accommodation of such persons, for if this practice prevailed generally, the administration of justice must be arrested or prevented.

4. *Imputed diseases* are at once discovered by the absence of symptoms, as when a son alleges that a parent is insane, or a wife that her husband is impotent.

CHAPTER XIII.

DISQUALIFYING DISEASES.

MEDICAL men are called upon to state, whether a person be labouring under disease which unfits him for serving on juries, attending as a witness, undergoing hard labour, the treadmill, or other corporal punishment. It is a rule laid down in most countries, that all acute diseases exempt a man from the performance of most of the duties and offices to which he may be called. Persons affected with epilepsy, convulsions, consumption, aneurism, asthma, stone in the bladder, infirmity from old age, or very delicate health, are not fit subjects for long confinement as jurors, or as witnesses in crowded courts. The evidence of such persons may be taken at their residence. In exempting criminals from punishment, though we always lean to the side of mercy, we must not be deceived by false representations, or simulated diseases. A medical man would grossly violate the duty he owes the profession and the public, if he impeded the administration of the laws, by using his authority in an improper manner. Motives of humanity must not influence his opinions; he is bound to give a correct decision, according to the best of his skill and knowledge. By the French law, all medical men convicted of having given false certificates, are liable to be imprisoned one or two years, or fined from 300 to 1000 francs.—(Briand. Man. Med. Legale.) In these countries physicians and surgeons are bound, by the collegiate oath, on receiving their degree or diploma, " to practise honourably." (See pp. 63—68).

Disqualifying diseases for the British Army.—All cutaneous diseases, ulcers, buboes, marks of punishment, as of military flogging, cicatrices on the neck, or any other part of the body, as from repeated venesection, deformities of the chest, spine, pelvis, superior and inferior extremities, fractures, contractions, mutilations, varicose veins, flatness of the soles of the feet, misplaced or supernumerary toes, hernia, diseases of the testicle and spermatic cord, fractures of the cranium, diseases of the eye, of cornea, iris, retina, malformation of the ear, deafness; impervious or diseased nostril, loss of many teeth, stammering, imperfection of moral faculties, diseases of the chest and abdomen, phthisis, hæmoptysis, asthma, hepatitis, nephritic complaints, stone in the bladder, stricture of urethra, retention or incontinence of urine; in a word, all diseases that require medical treatment.

Staff-Surgeon Marshall proposes the following mode for examination of recruits, which is now practised by regimental and other surgeons:—

" In the examination of recruits, the following routine will be found to be both expeditious and safe. The names, trades, &c., of the recruits for the day having been inscribed in the register, let them " fall in," and be inspected in their clothes. During this inspection we frequently succeed in detecting men who have previously been in the army, and who have been discharged in consequence of disease or disability.

" Let them next be examined singly undressed. Upon entering the inspection-room, each recruit is to walk a few times pretty smartly across the apartment, for the purpose of ascertaining that he has the perfect use of his inferior extremities. He is then to be halted, set up, and examined from head to foot. The inspection may be conducted with reference to the following qualities or condition of the body:—

" Muscular capability.

" General health.

" The condition of the external surface, comprehending chronic eruptions, marks of punishment, ulcers, cicatrices, &c.

" The configuration of the thorax, spine, and pelvis.

" The condition of the superior extremities, comprehending symmetry, fractures, contractions, mutilations, &c.

" The condition of the inferior extremities, including symmetry, &c., as also varicose veins, nodes, flatness of the soles of the feet, misplaced and supernumerary toes.

" Should no material defect be perceived during this survey, the examination may go on. The recruit is then, in imitation of the hospital-serjeant, to perform the following manual evolutions. To stretch out the arms at right angles with the trunk of the body, then touch the shoulders with the fingers, next place the backs of the hands together above the head; in this position let him cough, while, at the same time, the hand is applied to the rings of the external oblique muscles. Examine the spermatic chords and testes, then pass the hands over the bones of the legs. The recruit will next stand upon one foot, and move the ancle joint of the other extremity alternately. Let him then extend the superior extremities forward, for the purpose of having his arms and hands examined; he is in this position to perform flexion and extension of the fingers, and to rotate the fore-arms. The head is next to be examined, including the ears, eyes, mouth (speech, intellect). Then ascertain whether he has passed through small pox, or been vaccinated. The examination of a recruit in this manner will require above five or six minutes." The chest ought to be examined by auscultation and percussion.

This able surgeon gives a lucid account of the feigned diseases of soldiers.—(Edinb. Med. and Surg. Journ. 1826, v. xxvi., and his work, entitled Hints to Young Medical Officers of the Army, on the Examination of Recruits, and respecting feigned Diseases of Soldiers, &c. London, 1828, is a book that ought to have a place in every medical library, civil, military, or naval.

CHAPTER XIV.

AGE AND IDENTITY.

There are some important matters to be considered under this head, as the age of a new-born fœtus, as to its viability or non-viability (see Abortion and Infanticide), the period of life at which individuals cannot be deemed guilty of crime, as for example, a male being supposed to be incapable of committing a rape under the age of fourteen years, according to our laws; the proper period for marriage; the age at which pregnancy is possible, and beyond which it cannot occur; and the identity of persons from physical marks, cicatrices, malformations, deformities, &c. These questions have been duly considered in the preceding articles.—*Infanticide*, *Rape*, *Duration of Pregnancy*, *Impotence*, *and Sterility*.

CHAPTER XV.

MEDICAL EVIDENCE.

Blackstone has well observed, that "a competent knowledge of the laws of that society in which we live, is the proper accomplishment of every gentleman and scholar." Such knowledge is of the greatest importance to medical practitioners, as it is proverbial that the most eminent members of the faculty are among the worst witnesses in our courts of justice. This arises from the novelty of their situation, and from the brow-beating and bullying behaviour of rude lawyers, which one would think is caused by a desire to impede, and not to promote the ends of justice—the elicitation of truth. Medical men should recollect that they hold the same rank in the state as lawyers, are as useful and respectable members of society, and therefore are not to be insulted and perplexed by the pettifogging scurrility of their rivals, who are often their inferiors in talent. They should remember that the officers of justice, from the judge to the crier of the court, are men like themselves, and have no right to act uncourteously or ungentleman-like. When advocates behave in this manner, they are to be treated with utter contempt, and in no case should a medical man lose his patience or his temper. This is the fatal secret which defeats forensic trickery. In all cases a medical man can have no object but to state the truth. He can have no interest in the issue; he has no party bias; he is free from favour or partiality; and is regardless of the result. His duty is to prove certain facts, and to give the best received opinions of his profession. He is no advocate, he is never employed to convert truth into falsehood, "to make black white," and thereby to gain a reputation. He should answer "patiently, distinctly, and tersely, the question put by the counsel on both sides, the court, and the jury; and if none of these elicit the whole truth, and any material point remains to be disclosed, the presiding judge will always admit, and gratefully receive, the additions or explanations which may be necessary to the ends of justice."—(*Paris and Fonblanque*). This judicious advice comprises the whole duty of a medical witness.

Medical practitioners, like all other members of society, are bound to attend the various courts of justice as witnesses, on the payment of their expenses and for loss of time.—(See p. 178.) It is important to mention that the coroner's summons must be obeyed, or he may issue a warrant to apprehend and bring the witness before him; and he may commit him, if he refuses to give evidence.—(Professor Amos). The coroner's court is not necessarily an open one, but he may open it to the public or not, at his discretion. He has the power of ordering bodies to be disinterred; but he cannot command an autopsic or post-mortem examination, unless he or some one, pay the surgeon for performing it. It is a great defect in the English law that this officer is generally a lawyer; for it must be obvious as the noonday sun, to every scientific medical man, that no private individual, however well informed, is competent to ascertain the causes of death, in nearly all cases of homicide. He is unable to detect the incompetency of medical witnesses, to discover their erroneous practice or conclusions, to decide upon their conflicting evidence; in a word, to arrive at the truth. What can legal coroners know about the analysis of the numerous poisons, of the many diseases that so closely simulate the effects of poisons, and require the greatest discrimination from the most eminent medical practitioners. Neither can he discover any defect in the medical treatment; nor of the fatal effects produced by the negligence or disobedience of the diseased or of his attendants. How can such a person form a just estimate of the influence of age, sex, temperament, habit, and constitution, in rendering slight injuries, dangerous or mortal; facts that would often palliate the conduct of the accused, and save the forfeiture of his liberty and reputation? How can such a man estimate the danger of contusions, wounds, and other external or internal agents destructive to health and life? These and a thousand other arguments may be urged against the incompetency of legal coroners. If medical coroners were appointed, all circumstances for and against the accused, would be correctly and fairly estimated; medical men should be more careful in their practice, and much better acquainted with the various branches of their science; the sick would be more carefully attended to, and the accused would have a much greater chance of justice, than is afforded under the existing state of things. Ignorant and illiterate pretenders to physic, would be much more cautious how they undertook the treatment of disease, and humanity would be the gainer. A great part of the profession would be averse to the appointment of medical coroners, and this part consists of those who call themselves surgeons without the legal qualifications. Their number far exceeds that of the qualified members, more especially in London; and hence it was, that such medical men were opponents to T. Wakley, Esq. M. P. in his contest for the office of coroner. On that occasion, it was urged that a medical coroner could not comprehend the rules of legal evidence, but it was forgotten that the magistracy of the kingdom, most of whom are private gentlemen, act as coroners, and there is no objection urged as to their competency on this head. Now, without any disrespect of legal or civil coroners, I must contend, that medical men in general are as intelligent and as well informed as these classes of society, very often much better, and fully as competent to comprehend the rules of evidence. It requires no extraordinary intelligence to understand the principles laid down in Phillips on Evidence, or to acquire as perfect a knowledge of the law as the majority of magistrates and attornies. In support of this statement, the reader may be reminded, of the signal defeat of the great law luminary, Lord Abinger, by Mr. Wakley, and of the triumph of the same gentleman in the court of Chancery, in the case of Abernethy *v.* Hutchinson. The fact is, that the more we examine the objection under notice, the more we discover its invalidity. From the preceding statements, it is manifest, that the appointment of medical coroners would facilitate the administration of justice, and render the coroner's court a much more perfect and useful institution than it is at present.

With respect to the criminal liabilities of medical witnesses, the following cautions are to be observed:—

It is a principle of English law, that "no person is bound to criminate himself." This should be recollected, when a question is put which may criminate the witness. Thus if a surgeon attends at a duel, and is called as a witness to identify the parties, he ought not to commit himself, or subject himself to a prosecution for a felony.—(See p. 196; also Mr. Amos's Lectures). The judge usually cautions him against answering such questions.

Medical men are often called on to attest dying declarations. The law with regard to such declarations is, "that the person making them must entertain no hopes of recovery." The medical witness should take a note of them at the time, or as soon after as possible, with which he will be allowed to refresh his memory in courts of justice. The dying declaration ought to be voluntary, and the medical attendant should avoid questioning the dying man. It is not necessary that memoranda by a medical witness should be written, provided they are made at the time under his inspection. This applies more particularly to cases of autopsic examinations. But a witness cannot assist his memory with memoranda made by another person, as in hospital or dispensary case-books, unless he has inspected them, at the time they were being made, or at least very speedily afterwards.—(Amos).

Hearsay evidence is in general rejected, as it is not upon oath, and as the party giving it is not subject to cross-examination. There are exceptions, however, to this rule, as when a man informs his surgeon of the injury inflicted in an assault, which shews what he had suffered by reason of the assault; and the conversation of a person regarding health, as to the existing state of health, is allowed after his death, in order to invalidate a policy of insurance made upon his life, about the time of the conversation in question. This evidence is admitted as part of the fact which it accompanies, and is necessary to show the true character of that fact. But it will not be received in support of a by-gone fact, as when a woman relates that eleven months before she began to be with child.—(*Ibidem*). A statement made in the presence of an accused party will be allowed to show his demeanour at the time. Medical practitioners are generally present soon after a person receives injury, and should carefully observe the demeanour of all by-standers, so as to be able to say, if one of the persons present, who is afterwards accused, was sufficiently near to hear what was said, and whether he attended to it.

Medical practitioners are often present at the confessions of the accused, and should be aware, "that if any promise or threat has been used to obtain such confession, it cannot be heard." But if such confessions are made on the threats, promises, or remonstrances of by-standers, not magistrates, constables, or prosecutors, they will be received. Though the law is doubtful as to the promises, &c. of surgeons, Mr. Amos cautions medical practitioners against ever saying a word to induce such confessions; but should such be made, to note them down at the time, or as soon after as possible, and also the means practised by others, in order to obtain such confessions.

The next place to which the medical witness is called, is the *Coroner's Inquest.* I have already stated his relations to this inquiry, I may observe, in further illustration of this subject, that the jury must be sworn *super visum corporis;* and unless the body is present, or some part of it, as the head, limbs, &c. when the jury are sworn, the inquest is void. But I have been at an inquest where the body was a mile distant, at the time the jury were sworn. Cases have occurred where inquests were held on persons who were alive at the time. A medical witness ought to be more guarded in giving evidence before a coroner than before a judge. Negligent evidence before a coroner may free a guilty person; and, on the other hand, an innocent man may be committed to prison, and confined for several months, before he can be tried; and if the prosecutors are sick, and unable to attend, their depositions, though taken in the absence of the accused, and therefore not sifted by cross-examination, will be evidence against the prisoner. The deposition of a medical witness before the coroner is compared with his evidence before a judge; and if contradictory, it will be said, that had he died, and his deposition only been produced, the course of justice would be grossly perverted.—*Amos.* It has too often happened that the medical evidence before the coroner, and before the judge, has been contradictory and inconclusive.

A medical practitioner, who has not seen a patient, may, after hearing the evidence of others, be called to prove, on his oath, the general effect of the disease described by them, and its probable consequences in the particular case. Thus, in prosecutions for murder, medical witnesses have been allowed to state their opinions, whether the wounds described by other witnesses were likely to be the cause of death; or, in another description of cases, whether such and such appearances are symptoms of insanity? So a medical man may be asked his opinion upon many hypothetical points, not proved in evidence, but suggested by the ingenuity of counsel; as, for example, where the strangulation of a new-born infant is charged, whether the swollen and red appearance of the head might not have been occasioned by its being born some time before the body, or been produced by the accidental ligature of the navel-string?—(*Med. Gaz. Feb.* 12th, 1831, p. 612, and *Phillips on Evidence*, vol. i. p. 175.) The witness may be called upon to state the opinions of the most eminent members of the profession, of the past or present time, on the question under consideration; and therefore he ought to be conversant with the received opinions, at least of his contemporaries. It has too often happened that medical witnesses have contradicted each other, in the most positive manner, in courts of justice. This was the case, in former times, but seldom happens at present, when really scientific men are witnesses. It was well exemplified, however, at the inquest on the body of Miss Cashin, at which no two of the witnesses agreed.—(See *Lond. Med. and Surg. Journ.* 1830, vol. v.)

Mr. Amos cautions medical men against employing technical expressions in giving evidence, such as syncope for fainting, comatose, highly vascular, &c. "The judge and counsel," says he, "are generally very shallow men of science, and it is a great advantage for them to raise a laugh at persons whom they would represent to be using hard names for common things."—*(Lectures on Medical Jurisprudence, Med. Gaz.* 1831, vol. vii. pp. 545—610, *et seq.)*

Medical practitioners must divulge professional secrets when giving evidence.—(See p. 113, *Phillips on Evidence, Amos, Paris and Fonblanque.)* This is the reason that the Edinburgh oath has the clause, "*non sine gravi causa*," (See p. 63.) The French law is very different upon this point. "The tribunals neither ought, nor have the power to exact from a physician the revelation of a secret confided to him in consideration of his office: at all events he may and ought to refuse. Religion, probity, nay the rights of society, make this a law. Still more are we bound to secresy, when not compelled to disclose upon this point, and casuists and jurisconsults are of one opinion."—*(Belloc, Coursde Med. Leg.)* It is astonishing that barristers, attornies, and others (See Part II. p. 193), are not compelled to disclose professional secrets, which generally refer to matters relating to property, while medical practitioners, who are entrusted with the most delicate secrets regarding health and life, are not allowed the same privileges. I have only to add, in conclusion upon this article, that it is an axiom laid down by all medical jurists, "that the evidence of medical men should be given as plain and as free from technicalities as possible." There is not a dissentient authority upon this point.—*(Percival, Haslam, Gordon Smith, Hutchinson, Paris and Fonblanque, &c.)* It is almost unnecessary to state, that a medical practitioner should never show party bias, or assume the part of the lawyer or the prosecutor. He ought to be most careful in forming his opinion, as it may be compared with that of another. He ought to refresh his memory before he appears as a witness, by referring to the best works upon the subject, and this will prevent him from stating one thing before a coroner, and another before a judge. It has often happened that the direct evidence has been rendered nugatory by the admissions of the witness on cross-examination; and this is to be ascribed to his ignorance upon the subject. In some cases he must make experiments upon animals, and be careful to observe the particulars recommended by eminent physiologists and toxicologists.

Such are the principal points to be attended to by a medical witness; a fuller description of which will be found in Smith's Analysis of Medical Evidence.

In certifying as to the state of health for policies of life assurance, the law requires that the person, whose life is meant to be insured, has not "any disorder which tends to the shortening of life." "But it is not required that he should be free from the seeds of all disorder. The warranty is sufficiently true, if he be in a reasonably good state of health." *(Amos.)*—Even if a person labours under disease, which has no tendency to shorten life, the warranty is sufficiently true. The medical practitioner called upon for a certificate in these cases, is the ordinary attendant of the party whose life is about to be insured, and should visit the patient to ascertain his state of health on granting the certificate. I need not remark, that he should never give a false statement. This leads me to notice the duties of medical practitioners in giving certificates, for which they ought to be remunerated.

Certificates.—The law of this country requires oral testimony whenever it can be obtained; but there are some cases, in which medical certificates alone, or confirmed by affidavit, will be received. In all certificates, the symptoms of the existing disease should be fully and fairly stated, in order that the facts alleged may be examined, corroborated, or controverted by medical witnesses, on behalf of the party whom they affect. In all cases, "the truth, the whole truth, and nothing but the truth, should be stated." All written evidence is received with great caution by the judges, as no cross-examination can take place. Medical evidence has great influence on the administration of the criminal law of all countries. This has been well exemplified in this article; but I may add a forcible illustration mentioned by Mr. Amos. A woman swore positively that she had been violated. Had she died before the trial, her deposition, taken before the magistrate, would be received against the prisoner, without any palliating circumstance. At the trial, however, it was proved by the surgeon who had examined her after the offence, that she had told him she did not scream at the time. The jury acquitted the prisoner, as they did not think she had offered sufficient resistance. If she had died before the trial, the surgeon's testimony only could have saved the prisoner.

Medical practitioners must be regularly qualified in order to give certificates or evidence. They must belong to some of the Universities, Colleges of Physicians, Surgeons, or Companies of Apothecaries.—(See Laws relating to the Medical Profession.) The first question put to a medical man before a magistrate, coroner, or judge is, are you a physician or surgeon?" Are you a member of the College of Physicians of London, Edinburgh, or Dublin?" [as the case may be.] It is therefore necessary to state the legal title after the signature of the name at the foot of the certificate. I shall add a few forms of certificates for the benefit of young practitioners.

Many medical practitioners assume the title of M. D., Surgeon, and Accoucheur, and affix the same after their names, and even swear in courts of justice that they are legally qualified. The testimony of such persons will not be received if the deception is discovered, and such a witness would incur fine and imprisonment under the statutes relating to the insane.

1. *Certificate of the state of health of C. D., attesting the impossibility of his attending the Court of King's Bench, Court of Assize, &c. as juror or witness.*

I hereby certify that I have this day visited and examined C. D., Esq., residing at 35, ——— Square, and found him labouring under all the symptoms of pneumonia or inflammation of the right (or left) lung; his face is red and purplish, his breathing is oppressed, accompanied with deep-seated pain in the right (or left) side of the chest, which extends to the sternum or breast bone, his expectoration is tinged with blood, his cough is severe, his pulse hard, full, and frequent, and he labours under a high degree of fever. It is absolutely necessary that he should be confined to bed, and submit to the most active treatment; and cannot appear as a witness or act as a juror at the court of King's Bench, &c. without the greatest danger of losing his life.

85, ——— Street, E. F., M. D.
August 183 Member of the Royal College
of Physicians, in London.

This certificate may be embodied in an affidavit, and sworn to before a magistrate. Sometimes the affidavit is not required.

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2. *Certificate to exempt a witness or a juror from attending a court of justice; or a soldier from joining his regiment.*

I hereby certify that I have this day visited and examined Mr. G. H. residing at ——— grocer, or a private in his Majesty's —— regiment of foot, and found him labouring under a compound fracture of both bones of the leg, about three inches above the ancles. Violent inflammation has taken place around the wound, and extends to the calf of the leg. There is a considerable degree of constitutional irritation or fever present, and absolute rest is imperiously necessary for the proper treatment of his disease. Exertion of the affected limb would be highly improper and dangerous, and therefore it is impossible for Mr. ——— to be conveyed with safety, in any kind of vehicle, to the court of ——— or to attend as a juror or witness, or to join his regiment sooner than seven or eight weeks.

T. L.
Member of the Royal College
of Surgeons in London.

46, ——— *Street,*
Sep. 183

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3. *Certificate of the state of disease of a person in a hospital, required by a magistrate to warrant his taking bail for the party who has assaulted the sufferer.*

I hereby certify, that J. M., of 42, ——— Street, is now a patient in this hospital, in consequence of a lacerated wound of the scalp occupying the left temporal region. His symptoms are extremely dangerous, and there is much reason to fear that his recovery is doubtful, if not impossible.

H. H.
House Surgeon,
July, 183 Hospital.

4. *Certificate in cases of life assurance.*

" This is to certify, that Mr. ——— of ——— is of a good constitution, his general manner of living regular, his health good, and is at present free from any disease which can shorten his life."

A. B., M. D. or Surgeon.

The signature is to be attached as in the former cases. The different life assurance offices have peculiar forms or queries as to the terms upon which a person may assure, and these must be answered in the affirmative. The warranty required by law is, that " the person is in good health"—(see p. 467), and the above certificate is sufficient. If he has any organic disease in the head, chest, or abdomen, as apoplexy, epilepsy, consumption, asthma, disease of the heart, or of any other important organ in the abdomen and pelvis, the life of such person is non-insurable. The insurance should pay for such certificates.

5. *Certificate in cases of Insanity for the committal of a person to an asylum.*

We, the undersigned, have this day examined Mr.——— of ——— gentleman, aged — at the request of Mrs. ——— his mother, (aunt, wife, &c.) and are of opinion that he is insane, and should be immediately committed to some asylum for insane persons. We are informed by ——— that he has (or has not) been found a lunatic or of unsound mind, under a commission issued by the Lord Chancellor, Lord Keeper, or Commissioners of the Great Seal.

A. B., M. D.
C. D., M. D.
Members of the Royal College of Physicians in London, or of the Royal College of Surgeons, or Company of Apothecaries.

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The proprietors of lunatic asylums have printed certificates but the above will be sufficient, in the first instance, when such are not convenient.

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6. *Certificate to exempt a foreigner, residing in this kingdom, from serving in the army in his native country.*

This certificate was required by Prince Esterhazy from an Italian, who had property in his own country, and was bound to serve in the militia, unless disqualified by disease. It was also countersigned by the Lord Mayor of London.

Sciant omnes hisce litteris testatum volo, Dominum Valentino Pizzi, Italicum, Londini in vico, no. 73, vulgo dicto Holborn habitantem, sex hebdomadis elapsis, morbo hæmoptysi vocato, vexatum fuisse, et nunc hernia dextra inguinali illum graviter affici, quæ secundum leges nostras Brittannicas saltem, vitæ militari illum inaptum ægrum reddit. Cujis rei quo major sit fides, Sigillum meum et Chirographum apposui.

M. R., Med. Doct. et Chirurg., Collegiorum
Med. et Chirur. Regal, Londini, Socius.

Londini,
Mensis, Jan. 28o, 1836.

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7. *The following Certificate was required by Prince Tallyrand to exempt a French gentleman, residing in London, from attending as a witness in one of the Courts in Paris.*

Je soussigné, Docteur en Medecine de la Faculte de Londres, certifie que M. A., est atteint dans ce moment d'un catarrhe pulmonaire chronique, qui menace de passer à l'état aigu, et pourrait determiner des accidens facheux si M. A. ne se soumettait à un refros presque complet, et aux precautions hygieniques les plus sévères: aussi pensons-nous qu'il aurait danger pour M. A. de remplir actuellement les functions de temoin à Paris.

En foi dequoi j'ai délivré le present Certificat, dont j'atteste le contenu sincère et véritable.

M. R., Doct. en Med.

Fait à——ce 1er Janvier, 1835.

PART IV.

LAWS FOR THE PRESERVATION OF PUBLIC HEALTH.

CHAPTER I.

LAWS FOR THE PRESERVATION OF PUBLIC HEALTH—MEDICAL POLICE—STATE MEDICINE—PUBLIC HYGIENE.

All governments have framed laws, for the conservation of public health. The laws enacted for this purpose, are dispersed through the statutes of all civilized countries. Medical and statistical topography, public hygiene, civil, military, naval, and legal medicine, are established by law, for the preservation of the lives and health of the people. The history of public hygiene can be traced to the earliest age. It embraces a vast number of subjects:—the history of man, of society, of the arts, sciences, of the various pursuits, of climate, of physiology, and pathology; and all agents, beneficial or injurious to human health. Every civilized government legislates for the conservation, education, and amelioration of the species. It supports armies and navies, for the protection of national happiness, or for the defence of the whole population. It establishes civil powers for the protection of certain portions of society; it regulates the localities of towns and cities, according to medical advice, for the preservation of the health of the inhabitants; and it endeavours to confine or extinguish endemic, epidemic, and contagious diseases.

The laws relating to public hygiene may be traced to the remotest antiquity. "The origin of positive laws," says Foderè, in an unpublished memoir, addressed to the Council of Health of Paris, in 1817, "was deduced from the observations made on mankind, by physicians and philosophers. Many laws inserted in the sacred works of the people of Israel the codes of the ancient Egyptians, in which medicine and the priesthood, united supreme power, that part of the Roman laws, called *royal laws*, the laws that the decemviri extracted from] the Athenians, those which were successively added by the emperors Vespasian, Titus, Severus, Marcus Aurelius, Adrian, &c. contain the motives that decide many legislative enactments; the authority of Aristotle and Hippocrates worked incessantly: these and many other laws were the source from which emanated the first ties of human society.

This source was not forgotten by the church or by Justinian, when the Roman empire was converted to Christianity; it was compelled to adapt its laws to the principles of the new religion; and this prince undertook to reconcile the different contradictions, and to re-unite, in one code, the doctrine of the different laws. It is in his code, that the different dispositions which still influence many countries, will be found, relative to marriage, the period of delivery, and divers other questions, of the greatest interest to man, in civil and criminal jurisprudence. This was the first time, that written laws established the necessity of the intervention of physicians, as witnesses and arbitrators in medico-legal questions.

Toraqeau, a learned jurisconsult said, "that the science of the laws and of medicine were united in so intimate an alliance, that it would be proper for the jurisconsult to be also a physician."

The constitution of Charles V., established in 1552, ordered the tribunals to consult physicians in cases of homicide, infanticide, poisoning, wounds, abortion, &c. It is from this epoch that legal medicine dates its origin. It first commenced in Germany and in Italy, by the collection of a code of facts relative to the subject, which, properly appreciated, had great influence on public morals and the general welfare. The enactments of Henry III. of France, contained several admirable regulations, relative to the reports made in courts of justice, by physicians and surgeons.

Since the time of these enactments, the French legislature has never varied on the necessity of the intervention of physicians and surgeons in several cases of jurisprudence; but what has varied, and what has never been well defined, is the competency of the person, who ought to be consulted in such or such a case, in preference to another."

This quotation proves, that in the ancient and modern governments, the evidence of medical practitioners has been regarded as necessary to legislators and judges both in civil and criminal jurisprudence. Medical Police, Political Medicine, State Medicine, Public Hygiene, Police of Health, comprise the acts of a legislature, a government, and magistracy, for the conservation of public health, and for the enactment of laws for the regulation of the practice of the medical profession, and the duty of medical practitioners in aiding the legislature and public tribunals in forming just laws, and in the administration of justice.

The principal subjects under this head on which medical evidence is required, are, according to Dr. Gordon Smith, the following:—

1. *Ages.*—Characteristics and import of the several gradations in the period of human life, from the hour of birth to its natural decay, and final extinction; comprehending many circumstances relative to physical education, exercise, and other points of management.

2. *Marriage and population.*—The proper period and subjects for the former, with the influence of these considerations on the welfare of descendants—fecundity, mortality, &c. as questions of state importance.

3. *General or national manners.*—Their influence on health.

4. *Air, food, and drink.*—Importance of their purity and wholesomeness—including the medico-legal consideration of nuisances, adulterations, public cleanliness, ventilation, regulations for markets, slaughter-houses, burial-grounds, &c.

5. *Public buildings for numerous inmates.* As manufactories, barracks, prisons, hospitals, ships, &c. as regards ventilation, warmth, economy, discipline, labour, &c. &c.

6. *Topography.*—Comprehending climate, meteorology, soil, productions, &c. of countries and particular neighbourhoods.

7. *Clothing and dwelling-places.*

8. Employment and management of *the poor*, in order to preserve them from disease.

9. *Contagious, epidemic, and endemic diseases.*—Enumeration and history of the prevalent varieties; measures to be adopted to prevent their breaking out, or to arrest their progress.

Here the important question of Quarantine will fall under consideration.

§ 10. *Dangers incident to certain situations.*—As mines—during thunder-storms—and from a variety of accidents. Plans and institutions for resuscitating those apparently dead, from drowning, or other causes."

The consideration of these numerous topics, would occupy a series of volumes, and cannot be introduced in a manual of this kind. There is no systematic work on medical jurisprudence, in our language, that contains them; but they are to be found in treatises on hygiene, and on the other subjects alluded to. There is a vast deal of information in the late Mr. Thackrah's work.—" The Effects of Arts, Trades, and Professions, and of Civic States, and Habits of Living, on Health and Longevity, with suggestions for the removal of many of the agents which produce disease, and shorten the duration of life." Sir John Sinclair's Code of Health, Christison's Toxicology, and Kilgour's Hygiene, elucidate many points in public medicine. I have laid these, and many other similar works under contribution in this chapter.

Laws for the Preservation of Public Health.—There is no separate code of British laws for the preservation of public health, except those relating to quarantine, to cholera, and other reputedly infectious diseases; and the 59 Geo. III. c. 41, for the appointment of officers of Health in Ireland, with the numerous statutes for the establishment of Hospitals, Dispensaries, &c. as already quoted. All diseases which are communicable from the affected to those that are free from them are infectious; some are communicated by direct and immediate contact, and others through the medium of the atmosphere. It is true that all exposed to infectious or contagious diseases, do not contract them; but as it is impossible, previous to the prevalence of such diseases, to distinguish those who are predisposed, and those who are not, the same precautions are necessary as if all were liable to be attacked; and it is upon this wise principle that the quarantine, cholera, and other similar laws have been enacted.

The most important regulation for the preservation of the health of the community is the performance of quarantine;

that is, not allowing either the persons or goods on board any vessel coming from places where the plague or other infectious disease prevails, to land at their destination till forty days, or other determinate period, has expired.

By the 6 Geo. IV. c. 98, all the prior statutes relative to the quarantine laws are repealed, and other provisions are made similar, in their nature, to former regulations. By this act, places are to be appointed, by proclamation, for the performance of quarantine; or, the privy council may order vessels to repair to certain places to be examined, without being liable to quarantine.

Masters of vessels liable to quarantine are to hoist the yellow flag on meeting other vessels at sea, or being within two leagues of the United Kingdom, on penalty of 100*l.*

Masters refusing to answer interrogatories made to ascertain the state of their vessels, to forfeit 200*l.*; or omitting to disclose that they have touched at any infected place, to forfeit 300*l.*; or refusing to convey their vessels to the place appointed for quarantine, or quitting them, or suffering any other person to quit them, forfeit 400*l.*

Persons arriving in any infected vessel, or going on board, and quitting such before discharged from quarantine, to suffer six months' imprisonment, and forfeit 300*l.*

Persons forging or uttering false certificates, required by order in council, to be guilty of felony.

The privy council is also empowered to direct, in cases of any highly infectious disease, the destruction of the clothes and bedding of persons dying of such diseases, and to order measures for the purification, ventilation, and disinfection of their houses, and of all others in insalubrious districts.

I may here observe, that there is much reason to believe, from the experiments of Dr. Henry, of Manchester, that the best means of destroying the virus of contagion in merchandize, is subjecting it to the influence of a very high temperature; and, should this important conclusion be satisfactorily proved, the injurious effects of the present quarantine laws may be speedily removed. The bad effects of these laws on trade and commerce will be perceived on perusing the present method of purifying the cargoes of suspected vessels.

"When a ship arrives at a port from a suspected place, a boat is dispatched to inquire whether she have any sick on board, and into the nature of her bill of health; but no person is permitted either to go into the vessel or to leave her. If she have any one ill of plague on board, and intimation of this be not given by the captain, he is guilty of felony. On ascertaining the state of the health of the crew, the vessel is ordered into quarantine, according to the nature of her bill of health. In this country, the law in this respect is executed with great laxity; but in the ports of the Mediterranean, and the Adriatic, it is rigorously enforced; and there are lazarettoes of different kinds where the quarantines are performed. If the ship have any of the crew with symptoms of plague, the highest degree of rigour is enforced, and the quarantine continues for eighty days; the goods, before being landed, even in the lazaretto, are exposed on the decks of lighters for twenty days, and daily turned. They are then landed, unpacked, and, according to their nature, exposed to the air. If cotton be part of the cargo, the bales are taken to pieces, and men, who are employed for the purpose, throw the whole daily over their heads, for sixty days, and if plague be not communicated to any of them in that time, the cotton is declared clean, and permitted to be taken from the lazaretto. The crew are also confined to the lazaretto, and daily inspected by a medical practitioner, who judges of their freedom from the disease, by making them beat their axilla and groins, and observing whether they express any degree of pain; in which case they are stripped naked, and carefully examined.

If no symptoms of plague have actually appeared on board the ship, and she merely come from a suspected port, then she is ordered to the second description of lazaretto; and the treatment, although nearly of the same kind, is less rigorous. The labourers, instead of throwing the cotton, for example, over their heads, merely bare the arm, and thrust it into the bale in a naked state, up as far as the shoulder. Twenty days are a sufficient trial in this case, during which, if no disease appear, both the goods and the crew are declared clean. In the third description of lazaretto, the goods are merely landed, and the crew detained for the space of twenty or forty days, as circumstances are more or less favourable. The last kind of lazaretto is a place merely for those suspected of having come from an infected port, in which the crew are confined for a week; and, if nothing disadvantageous to their health appear in that time, they are declared healthy. Such is the usual manner of performing quarantine. The services of the medical man are required only to examine the crew and passengers, under the two first species: and in both cases, it is of much importance that he should be aware of the nature of plague and other infections, to be able to decide at once on the first appearance of the disease. If plague appear during the period of performing quarantine, and the patient die, the body is buried within the lazaretto, and the grave filled with quicklime. Should any of you gentlemen be placed in a situation where you are likely to be called upon to perform the duty of inspection, and the state of the pulse is necessary to be ascertained, you should bear in remembrance that the finger should be dipped in oil, so as to interpose a medium between the finger and the skin of the patient: and this has been found a sufficient safeguard to the physician. In examining a patient also, the practitioner should stand on the windward side of the patient, to afford a chance of the infectious matter emanating from the diseased person to be wafted from him.—*Dr. Thomson's Lectures.*

I may here state that the community express strong objections to the interment of bodies in an hour or two after death, and more especially in unconsecrated earth. (See p. 485.)

Appearing abroad with infectious disease.—By 1 Jac. I. c. 31, if any person dwelling in any infected house be commanded by the mayor, or other head-officer of the town, to keep his house, and disobey such command, he shall, though there be no plague or sore upon him, be punished as a vagabond by whipping, and be bound to his good behaviour: but if he have any infectious sore upon him, uncured, he is guilty of felony.

Lord Ellenborough held that it is a misdemeanor at common law to expose a person labouring under an infectious disease, as the small-pox, in the streets or public places, *Rex*

Vantandillo, 4 M. and S. 73. An indictment lies for lodging the poor in un unhealthy place, *Cald.* 432.

" There is one disorder," says Dr. Paris, " to check the propagation of which has been singularly neglected, under the curious pretence that any regulation would be an encouragement to immorality. We cannot consent to the validity of this objection, and think that we should find little difficulty in refuting it."

" From our social improvements, and from increased habits of cleanliness, we may deduce the milder form and more unfrequented occurrence of the disease, which poisons human life at its source. Still we feel some astonishment that the change has not been forwarded by a measure of the police; for though a Parisian system might savour somewhat too much of our own ancient abuses,* yet it would neither be difficult nor immoral for the magistrates, when they occasionally clear the streets for the night, to order the detention of those whose liberty might, on surgical examination, prove dangerous to the unwary; *obsta principiis* is as good a maxim in law as in physic. One surgeon attached to each police office, for this, and other evident purposes, would be materially useful and not considerably expensive." It is singular that this judicious suggestion has never been acted on.

The importance of the purity of air, water, and situation to the preservation of health was duly estimated by Hippocrates, and in all civilized countries since the epoch in which he flourished. The laws of this country, for the abatement of nuisances, with some few others, as those relating to quarantine, paving, sewers, cleansing the streets, &c. are sufficient for the preservation of the public health. The guardians of the public health are the colleges of physicians, as the boards of health, which advise the government and legislature, and also as inspectors of apothecaries' shops, the medical practitioners as local boards of health, and as officers of hospitals, public charities, parishes in England; the custom-house officers, who ascertain the bills of health in the army and navy, &c. of all vessels arriving at our ports, the commissioners of sewers, the clerks of the meat, vegetable, cattle, and other markets, the corporation of parish clerks, who prepare the bills of mortality, the inspectors of lunatic asylums, prisons, factories, poor law commissioners, and parochial authorities, together with the Lord Chancellor, judges, magistracy, and police.

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* The curious reader will not be at a loss to trace the ancient patronage and jurisdiction of the Bishop of Winchester; suppressed among other ecclesiastical establishments by *Henry VIII.*

There is one class of the preceding guardians of public health, which cannot be passed over without a remark, namely, the framers of the bills of mortality. These have recommended every parish in London to appoint two old women as searchers, and who are to apply to the sexton, on the tolling of the parish bell, to learn the residence of the individual, whose body is about to be interred, and these are to report the cause of death. The fee to each is fourpence. The observations, on the inefficiency of such persons, is thus happily demonstrated by Dr. Paris :—

" We entirely agree with Dr. Burrows* inthinking that the office, as at present filled, should be entirely suppressed; and the attestation of a properly qualified medical practitioner, upon actual knowledge of the disease of which the person died, or upon inquiry and examination of the body, should be substituted. Were competent persons only appointed to report, the nomenclature† and classification of diseases, in which there has been little variation since the origin of the bills, would consequently be reformed; and we should then derive from them the elucidation of many important and dubious medical points, as 1. *The causes of many diseases, and their affinity to one another.* 2. *The rise, situation, increase, decrease, and cessation of epidemic and contagious diseases.* 3. *The means of guarding against their extension and effects.* 4. *The comparative healthiness of different countries and places, climates, and seasons.* 5. *The influence of particular trades and manufactures on the human constitution.* Such are the medical advantages which would arise from correct and enlarged bills of mortality." This is the French plan. See p. 487.

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* Strictures on the Uses and Defects of Parish Registers and Bills of Mortality, with Suggestions for improving and extending the System of Parochial Registry. London, 1818.

† Many of the diseases are absolutely unintelligible under their present designations; such, for instance, as Headmoldshot; horse-shoe head; overgrown head; rising of the lights, &c. Others are barbarous, as liver-grown; twisting of the guts, &c. Others again are far too indefinitely expressed, to be admitted as specific diseases, of which aged, bed-ridden, bile, colds, may serve as examples. " Fevers of all kinds" is a little too sweeping and indiscriminate. " Abortives and still-born" united, form a large number in the general annual bill, the absurdity of which is apparent. Child-bed is a formidable article in the bill, and is liable to much misinterpretation and error; all women dying within the month after delivery are indiscriminately classed under child-bed, whether they die in actual labour, or subsequently of acute fever, consumption, or any other disorder. Infants

When it is stated that a vast number of burials are without the walls, as those of Dissenters, Quakers, Roman Catholics, Baptists, and all who do not belong to the church of England, the bills of mortality are most defective and inaccurate. This defect has caused the establishment of a Statistical Society in London during the last year, which will lead to important results. The reader will find much instructive information on medical statistics in a most useful little work, *The British Medical Almanac*, 1836.

The sale of unwholesome provisions is contrary to law.

Sale of unwholesome Provisions.—In general, any practices by which a man's health is injured, or the vigour of the constitution impaired, are punishable; as by selling unwholesome provisions, by the exercise of a noisome trade, which pollutes the air in the neighbourhood, or by the neglect or unskilful management of his physician, surgeon, or apothecary. It is a misdemeanor to give any person injurious food to eat, whether the offender be excited by malice or desire of gain. The 51 Hen. VIII. punishes the sale of *unwholesome* flesh with fine and imprisonment; and, by the 12 Car. II. c. 25, any brewing or adulteration of wine is punished with the forfeiture of 100*l.* if done by the wholesale merchant, and 40*l.* if done

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dying before baptism are not returned by the parish clerks in the bills of mortality. In the old bills they were entered under the denomination of Chrysoms, but this title has been long disused.—See Burrows's *Strictures*, p. 53.

by the vintner or retail dealer. By the 1 W. & M. c. 34, it is more generally provided that any person who shall sell wine, by wholesale or retail, who shall adulterate it, or sell it adulterated, shall forfeit 300*l.* for each offence, half to the king, and half to him who shall sue for it, and shall be imprisoned three months. (See ADULTERATION OF ALIMENTS.)

In connection with the preservation of public health, a few observations may be made on the bad effects of the *interment of the dead in crowded towns and cities.*

CHAPTER II.

INHUMATION—BURIAL OF THE DEAD.

IT was wisely considered in the early ages, that the burial of the dead in crowded cities was detrimental to public health. The Jews and Heathens decreed, that the place of interment should be without the city. All eastern nations *who buried their dead*, adopted this custom.

Bingham in his *Church Antiquities* adduces many proofs, that burying in churches and church-yards became customary in the eighth century, on account of the estimation of consecrated ground, relics, &c. Gregory the Great deemed the custom a good one; as relations and friends, on attending divine worship, and on beholding the tombs of their relatives or acquaintances, would be induced to pray for them. Cuthbert, Archbishop of Canterbury, introduced this custom into England, A. D. 750.

Nature has implanted in the human breast, a veneration and respect for the remains of near relations or sincere friends; "and every nation, whether civilized or barbarous, has accordingly invented and practised some ceremony, in general of a religious character, for the final disposal of the human corpse; but it is, however, the duty of the State to guard the living from those evils to which an ill-applied respect for the dead may be likely to subject them."—*(Paris.)*

The cemetries in London and Paris have been so crowded that the soil was raised eight or ten feet above the level of the adjacent streets; and in such cases, exhaled most injurious effluvia. Such was the state of St. Margaret's church-yard in this vicinity, in 1814, and of St. Innocents' in Paris, in 1785.

Exhumation.—It was formorly supposed that the gases evolved from dead bodies on opening graves, were capable of producing the contagions of the most pestilential fevers, and even of plague; but this opinion is now completely exploded. It is also determined that such gases cannot communicate the disease of which the individual died, whose body affords them. This is evident when we examine the progress of putrefaction, for the gases or elements supplied by the tissues of the human body, though many of them are highly injurious to health, and may cause asphyxia and even death, are, in most instances so diluted by the atmosphere, as not to be dangerous to life. The workmen engaged in exhumations in Paris, had often suffered from nausea, vomiting, and some from asphyxia; but none of those engaged at St. Innocents perished.

The universal experience of medical practitioners leads to the conclusion, that animal substances, in a state of the putrefaction, taint the atmosphere, and render it dangerous to individuals and animals that respire it. Rommazzini, Vicq. d'Azyr, Haller, Ranlin, Haquenot, and many others, have recorded examples of sudden death produced by exhumation. It is also to be remembered, that the putrefaction of the body is effected at different periods, according to the soil in which it is inhumed, and the depth it is from the surface.

According to the law of this country, the human corpse must be buried in proper time, after two or more days, according to the custom of the place at which a person dies. A curious question was decided by Lord Stowel, as to the durability of iron and wooden coffins, and he held, that as the former were most durable, the parties are to be held liable to extraordinary fees.—*(Paris and Fonblanque.)*

The law of France requires, that a physician should be appointed for each district, to report to the mayor the following particulars:—1. the name and surname of the deceased; 2. the sex; 3. whether married or unmarried; 4. the age; 5. the profession; 6. the exact hour at which death took place; 7. the number of the house; 8. the locality of the apartment; 9. the nature of the disease, and whether the body was opened; 10. the antecedent causes, and the complications of the disease; 11. the duration of the disease; 12. the name of the medical attendant, and of those who supplied the medicine; and, 13. the names of the ordinary attendants on the deceased. (See *Orfila, Briand, Sedillot, &c.*)

These measures are necessary in large towns and cities, to prevent a host of crimes, and to discover those that have been committed; they afford valuable information in all cases in which it is necessary to revert to the circumstances of death, or of personal identity.

There are also physicians appointed at Strasburgh to determine the time and hour at which inhumation or interment ought to take place, and such officers are general in France.

Premature Interment.—Uncertainty of the Signs of Death.—It now scarcely ever happens, in consequence of such wise regulations, that bodies are buried too precipitately or subjected to the scalpel of the anatomist. In former ages, such occurrences were not so rare, and even a frightful case was recorded in one of the periodicals during the last year. Vesalius was accused of homicide for having commenced the study of anatomy on the body of a man who was supposed to be dead. A similar misfortune occurred to Servet and Phillipe Peu; which I shall fully describe hereafter—and here allude to it briefly:—

The Abbè Prevôt was attacked with apoplexy during a walk, and was supposed to be dead; but the moment at which the above-named surgeon commenced his autopsy, which was required by the law, the pain caused by the scalpel, recalled him to life, to the eternal fright and regret of those who were about to consign him to the tomb. Winslow, the celebrated anatomist, had been buried twice. M. Francois Civille, a Norman gentleman, in the reign of Charles IX, *was three times dead, three times interred, and three times resuscitated, by the grace of God.*—(*Sedillot. Manuel complet. de Med. Le-*

gale.—Paris, 1835.) M. Thouret, while dean of the Faculty of Paris, was ordered to attend the exhumations at the cemetry of Innocents', and observed so many bodies and portions of bodies in such positions as clearly proved, that the unfortunates were interred too precipitately, and had returned to life. He was so affected by this deplorable circumstance, that he ordered in his will, that such measures should be taken as to prevent a similar misfortune to himself.

M. Bruheir reports in his work (on the Uncertainty of the signs of Death), that fifty-two living persons were interred, four opened before death, fifty-three buried after they had returned to life, and seventy-two reputed dead without having been so. —(*Briand Manuel de Med. Legale*, 1828.)

The following case, to which reference has been made in a former page (246), on the possibility of conception while the woman was unconscious of it, is related by the celebrated Louis *(Lettre sur l'Incertitude des signes de la Mort.)* A young monk stopped at a house, during his journey, in which the body of a young girl was laid out for burial. He offered to pass the night in the apartment in which the coffin was placed. Having stripped the body during the night for the purpose of examining it, and having observed some traces of beauty which excited his concupiscence, he gratified his desires. He continued his journey next day. Some hours afterwards, when the friends of the supposed deceased were preparing to inter the body, the girl, who was supposed to be dead, resuscitated, and, at the end of nine months, she brought an infant into the world, to the great astonishment of her parents and her own. The monk came, on his return, to the same place; he avowed himself the father of the child, and married the mother of it, after releasing himself from his vows which he said he was constrained to take. It is evident, from this case, that a woman, affected with certain states of hysteria, catalepsy, or lethargy, might be impregnated without her knowledge. Several cases are recorded of individuals, who were buried before the extinction of the vital spark. John Scott, the emperor Zeno, and others were entombed alive, and perished, in the agonies of despair, rage, or hunger. Diembroeck Lib. ij, Mathæus Quest. Med. Leg. Hildanus, Pinneau, and others attest such cases.

Lancisi knew an individual of distinction, who recovered sensation and motion while the priest was reading the funeral service over him in the church; a circumstance which struck the bystanders with a degree of terror superior to their surprise.—*(De Morte Subitanea, lib.* 1.*)*

Zacchias relates the case of a young man, who was taken to be buried in a boat, that showed signs of life, and revived. In two days afterwards he was judged to be irreparably dead, and was again prepared for burial, but he resuscitated and was restored to health. This celebrated author states that several persons were buried alive during the plague of Rome (Med. Leg. T. iii.), and there is too much reason to believe that this occurred in many other cities, and even in London, during the late epidemic cholera.

Philip Peu, an eminent surgeon and obstetrician, in Paris, with a degree of candour, no less singular than praiseworthy, relates (Prax. Obstetr. 11. c. 11. § 2.) an unfortunate accident which happened in his own practice. Being warmly solicited to perform the Cæsarian operation on a pregnant woman, whom he conceived to be dead, because he felt no pulsation in the sides of the breast, and because a mirror applied to her mouth was not tarnished by her breath, he did not hesitate to commence the section; but scarcely had he plunged the scalpel into the integuments, when, by the trepidation or fluttering movements of the patient's body, he was, though too late, convinced of the fatal error. This unfortunate, and no less melancholy mistake, so completely overwhelmed him, and filled his mind with such terror, that he bound himself, by oath, never again to attempt the same operation, until he was thoroughly convinced, by less equivocal signs, that life had fled its earthly habitation for ever. See p. 274.

An accident similar to the above is related of another surgeon, who was ordered to inspect the body of a certain man of quality within twenty-four hours of his supposed death. The hardships and inconveniences to which Vessalius, the greatest anatomist of his day, was exposed, from an accident of this description, are sufficiently known. But should these well-authenticated histories, consecrated to immortality, be considered at all apocryphal, there are others of a more recent date which may be satisfactorily referred to. Among these is father Le Clerc, formerly principal of the College of St. Louis the Great, and a man universally esteemed for the active probity and candour of his life. This gentleman informs us, that the sister of his father's first wife being interred with a ring on her finger in the public cemetery of Orleans, was, the following night, uncovered by a domestic, who was induced thereto, by the hopes of plunder, to violate the sepulchre; but finding that he could not disengage the ring from the finger, had actually commenced cutting off the latter. The sensation communicated to the nerves by the wound roused the woman, whose hideous shrieks, extorted by the pain, not only struck terror into the sacrilegious robber, but also put him to flight without his intended booty. In the meantime the resuscitated woman disengaged herself from the apparel of death as well as she possibly could, returned home to her husband, with whom she afterwards lived ten years, during which time she furnished him with an heir to his estates, a desideratum he long had previously wished to enjoy.

M. Joseph Mareschal, formerly chaplain of the metropolitan church of Paris, prior of St. Jean de la Motte au Mans, and a man whose probity and attachment to truth were genuine ornaments to the sacred character he bore, attested, that about the year 1714, when passing through the street St. Jean Robert, he saw a woman wrapped up in a woollen covering, and sitting in an arm-chair at the door of a house, close to the coffin in which she had been conveyed thither, and from which she had very shortly before been released. The same gentleman also declared that, in the year 1722 or 1723, he saw certain persons meet the public bearers, who were coming into the street called Champ Henry, in order to convey a corpse to the place of interment, and heard the former tell the latter, that they might return, since the person they believed to be dead was alive, and but lately released from his coffin.

Mr. Bernaud, an eminent French surgeon, certified, that in the parish of Riol, Paris, he himself, when a young man, in the presence of his father and several other spectators, saw a monk, of the order of St. Francis, who had been buried three or four days, taken from his grave, breathing and alive, with his arms lacerated near the swathes, employed in securing them; but he died immediately afterwards, doubtless from not having met with a more timely release. It is asserted also, by the same gentleman, that a faithful narrative, of so memorable an occurrence, was drawn up by public authority, and that the disinterment of the body was occasioned by a letter written from one of the monk's friends, in which it was set forth, that he was subject to cataleptic fits.

Dr. Crichton, physician to the Grand Duke Nicholas (now Emperor of Russia), relates, that "A young girl, in the service of the Prince of ——, who had for some time kept her bed with a nervous affection, at length, to all appearances, was deprived of life. Her face had assumed all the characteristics of death; her body was perfectly cold, and every other symptom of the "grim king" being in full possession were manifested. She was removed from her bed-chamber to another apartment, and placed in a coffin. On the day fixed for her funeral, hymns, according to the custom of the country, were sung before the door; but at the moment the coffin was about to be nailed down, a perspiration was perceived upon her skin, and in a few minutes it was succeeded by a convulsive motion in the hands and feet. In a few moments she altered her eyes, and uttered a piercing scream. The faculty were instantly called in, and, in the space of a few days, her health was perfectly re-established. The account she gave of her situation is extremely curious. She said, she appeared to dream she was dead, but that she was sensible to every thing that was passing round her, and distinctly heard her friends bewailing her death; she felt them envelope her in her shroud, and place her in the coffin. This sensation gave her extreme agony, and she attempted to speak, but that her soul was unable to act upon her body. She described her sensations as very contradictory, as if she was and was not in her body at the same instant. She in vain attempted to move her arms, to open her eyes, or to speak. The agony of her mind was at its height when she heard the funeral hymn, and found that they were about to nail down the coffin. The horror of being buried alive gave a new impulse to the mind, which, in consequence, resumed its power over the corporeal organization, and produced the effects which excited the notice of those who were about to convey her to a premature grave.

The well-attested history of Vesalius, unintentional as it happened to be, sufficiently confirms, that incisions have been the means of restoring the apparently dead to life. This eminent anatomist, successively first physician to Charles V. and his son Philip the Second, of Spain, being persuaded that a certain Spanish gentleman, whom he had under treatment, was dead, asked permission of his friends to inspect the body. His request being granted, he had no sooner applied the knife to the body, than he observed signs of life; nor could he be well mistaken in his conjecture, for, on opening the thorax, judge of his horror and astonishment, he saw the heart palpitating before him. The friends of the deceased, prompted, no doubt, instigated by the truly terrific accident, prosecuted Vesalius as a murderer, and also accused him of impiety, before the tribunal of the Inquisition. The fact was soon made notorious, and the judges of that merciless and unrelenting tribunal resolved that he should suffer as a murderer. By the authority, however, or rather by the intercession of the King of Spain, he was rescued from the impending and evidently inevitable danger, on condition that he should expiate his crime by undertaking a voyage to the Holy Land. On the death of Fallopius, the senate of Venice invited him back to succeed that great anatomist. With this intention he embarked, but on his voyage thither he was cast by a violent storm upon the Island of Zante, where, having wandered some days in the deserts, and suffered the last extremities of hunger, he died, at length, in the most deplorable manner, for want of sustenance, on the 15th of October, 1564, in the fifty-eighth year of his age."

An account of a similar accident which befel another anatomist is related as follows:—

" A Spanish lady of distinction being seized with a violent hysteric paroxysm, which threatened suffocation to that extent that every one thought her irretrievably dead. Her friends employed an anatomist to open the body, with the intention, perhaps, of ascertaining the cause of her death; when, upon the second stroke of the knife, she was roused from her state of torpor, and by the most lamentable shrieks, extorted by the fatal instrument, gave signs, but too evident, that she was not dead. This melancholy spectacle struck the bye-standers with such horror and consternation, that the anatomist, now no less condemned and abhorred, than before applauded and extolled, was forthwith not only obliged to quit the town, but also the province in which the guiltless tragedy was acted. His escape became the more necessary, not only to avoid the reproaches with which he was loaded, but also to preserve his life, now exposed to danger, rather by misfortune than by crime. But although he had now abandoned the painful scene where the accident occurred, a groundless remorse preyed so much upon his mind, until a settled and fatal melancholy put an end to a life, the calamities of which could only terminate with it." (Forsyth.)

According to the French law, no inhumation shall take place before the expiration of twenty-four hours from the moment of death, unless when incipient putrid decomposition makes rapid progress and endangers the health of those who reside in the same house with the body; and in the last case, the evidence of a legally qualified physician must be procured to attest the fact.

Interments rarely take place in these countries sooner than thirty or forty-eight hours after death, and rarely before the expiration of five or six days in London, unless when epidemic cholera or some similar disease prevails, when the boards of health order inhumation in a few hours after death. This regulation was enforced with indecent vigour during the prevalence of the malignant cholera of 1832—3. See p. 486.

Inhumation ought to be delayed longer than twenty hours in cases of sudden death, from apoplexy, convulsions, hysteria, catalepsy, asphyxia caused by drowning, strangulation, or non-respirable gases, (see Asphyxia, p. 343), as in such cases all appearances of vitality may be destroyed, though life is not extinguished.

CHAPTER III.

SIGNS OF REAL DEATH.

The *signs of real death* are the cadaverous aspect of the face, the depression and obscurations of the eyes, the livid cold skin, the absence of respiration and circulation, the rigidity of the extremities and body, and putrefaction.

Aspect of the face.—The cadaverous aspect of the face cannot be relied on, as it may be observed, during life, in those affected with chronic diseases, and may be absent in those who have died suddenly from very acute maladies, or who perish in battle. It may be present in those, under the influence of great terror, as in criminals about to be executed, or in timid patients, when despaired of by their medical attendants, or during the last consolations of religion, the signs observed in the eyes are inconclusive; they may exist in asphyxia, though resuscitation follows. (Orfila.)

The *absence of heat* and the lividity of the skin are also equivocal, as they exist in certain cases of individuals, and, at other times are not manifest in bodies really dead.

The *absence of circulation and respiration* may occur in asphyxia, syncope, lethargy, catalepsy for some time, and recovery happen. The celebrated Colonel Townshend, whose case is related by Dr. Cheyne, of Bath, suspended the circulation and respiration so long as half an hour, when it was feared that he was dead, but these functions gradually returned. The illustrious Haller was of opinion that women possessed the power of arresting the pulsations of the heart. The pulsations of the heart and arteries may be totally absent, and the individual in good health.—(Jackson, of Philadelphia, and others.) The action of the heart and arteries was absent in persons attacked with the malignant or blue cholera of 1832 for thirty-six hours before the fatal termination, as I had repeatedly witnessed.

A mirror placed near the mouth, or a glass filled with water, on the lower part of the sternum (Winslow), or a lighted candle, burnt hair or feathers, or ammonia brought close to the nose, afford but uncertain results.

Cadaverous rigidity.—Stiffening of the body after death. At the moment of death all the soft tissues become relaxed, the duration of which varies from a period of some minutes to sixteen or eighteen hours; it is replaced by rigidity, which invariably occurs. M. Nysten has carefully studied the progress of rigidity. It commences when the heat of the body is diminished: thus it can be retarded by immersing the dead body in a warm bath, or surrounding it with warm clothing, &c. Nevertheless, Morgagni has cited cases of sudden death, where rigidity commenced almost immediately, though the body had preserved its heat.

The muscles are the seat of this phenomenon, and it appears "that life takes refuge to the last in these organs, and there determines the spasm that constitutes rigidity." (Nysten.) Dr. Fletcher observes in his luminous remarks on the rigidity of Mrs. Reid, who was wrongfully supposed to have been murdered by her husband, and of which charge he was acquitted by the evidence of Dr. F.* "if the rigidity of the muscles after death depend, as is probably the case, upon the same cause as the coagulation of the blood, namely, the inspissation of the chemical principle called Fibrin, it is reasonable to suppose that this rigidity would not have preceded *livor*, since the process by which the latter is effected implies that the blood is still in a liquid state." In speaking of the stiffness from spasmodic contraction, this learned and celebrated physiologist observes, "we know that the features of the face often retain, till putrefaction supervenes, the expression of the last mental emotion; that in cases of death from cholera, the contractions of the extremities are often equally permanent; and, after death, from tetanus, particularly as induced by certain poisons, the performance of which contractions is still more remarkable." The same author offers additional remarks in his Rudiments of Physiology, 1836.

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* Remarks on the trial of Robert Reid, for the murder of his wife, before the High Court of Justiciary at Edinburgh, on the 29th of June, 1835. By John Fletcher, M. D., F. R. C. S., Lecturer on Physiology and Medical Jurisprudence. Republished in my Journal, August, 1835, vol. viii.

" It is a distinguishing property of Fibrin to undergo spontaneous coagulation; but no such coagulation takes place in muscles—which are still described as containing this principle —till they are deprived of their vitality, when they rapidly become stiff; and it is to this cause, and not to the contraction of the muscles, that the rigidity of the limbs, which soon succeeds death, and continues till the putrefactive process has commenced, is to be attributed. It is a process very similar to that of the coagulation of the blood; the only difference consisting in this, that the blood stiffens, owing to the retention by its Fibrin for a sufficiently long time of its identity, while the muscles stiffen, owing to the development in them of Fibrin which they did not previously contain.

" That the seat of this rigidity is the muscles is obvious, since it ceases immediately upon their being divided; but Hunter, Nysten, and most late physiologists have been mistaken in ascribring it to muscular contraction, excited by what Hunter calls " the stimulus of death," with as little precision as he speaks of " the stimulus of necessity," " the stimulus of cessation," &c. That such is not the case is clear from the facts, that it does not take place till some time after death, whereas such contractions should be most powerful immediately on its occurrence, and that it takes place—and that even more quickly and remarkably—as well in weak subjects as in strong ones. That it is not obviated by palsy, or by the division of the spinal cord, although apparently a very strong argument against the notion of Hunter, is not really so: since the supposed contractions may be conceived to be quite independent of any stimulus naturally conveyed by the nerves. It has indeed been suggested by some chemical physiologists, that the contraction of muscles during life may be, to a certain degree, dependent on the coagulation of their Fibrin; and Humboldt, Cuvier, and others, have supported the notion that the increased cohesion of muscles, under these circumstances, is attributable to this cause. Rudolphi accordingly endeavours to unite the opposed doctrines, and ascribes the rigidity of the limbs after death to muscular contractions, "excited by a chemical operation." The "chemical operation" however, unfortunately for this *juste milieu* hypothesis, does not take place till the susceptibility of contraction has ceased—to say nothing of the probability that such a coagulation of their Fibrin, far from effecting, would be incompatible with the contraction of muscles, or of the absolute superfluity of the presumption of any such contraction in explaining the phenomenon in question. It is remarkable that this rigidity is prevented, as already remarked, by most of the causes which prevent the coagulation of the blood; a circumstance which, while it favours the presumption that it depends on a strictly chemical cause, is not at first sight easily reconcileable with the hypothesis that the latter is prevented, in these cases, by the Fibrin being inadequately recomposed, after its decomposition, owing to the congested state of the radicles of the veins, since this cannot apparently have any effect in preventing the development of Fibrin in the muscular tissue upon the cessation of its irritability. It will appear, however, in future, that the total want of muscular contraction, which likewise in general occurs after death under these circumstances, can be referred only to a deterioration, owing to excessive irritation—such as that produced by electricity, violent exercise, and the other causes already enumerated, as producing venous congestion—of that tissue on which the irritability of the muscles immediately depends; and if we are thus compelled to admit the deterioration of one tissue to explain this phenomenon, it is surely allowable to suppose that of another to explain the one under consideration; and to presume, that the want of subsequent rigidity under these circumstances results from the deterioration of the muscular tissue, which is resolved into Fibrin after death, only when in a state of integrity."

In the preceding remarks it was most important, whether the rigidity of the body, induced in the usual way after death, according to Dr. Fletcher's opinion, or by spasmodic contraction, as the deceased had long suffered from palsy and disease in the upper cervical vertebræ. A few further remarks are necessary on this last point.

"The best means of distinguishing cadaverous rigidity," says M. Sedillot, "from convulsive, tetanic contractions, &c., is to force the muscular action mechanically: in the first case, the limb remains in the new position which is given to it; whilst in the second, it returns to that which it first occupied. In fine, to avoid all uncertainty, it will be necessary to determine that the body is cold to pronounce that it is dead; for, in prolonged syncope and asphyxia, it may remain rigid, though life is not extinguished; but then the body preserves its heat."

In convulsive rigidity, the result of nervous disorders, the body retains a certain degree of heat, which may be ascertained by a thermometer; and nervous rigidity always precedes the state of apparent death; whilst the cadaveric stiffness does not supervene before a longer or shorter period after the extinction of the vital functions. When the rigidity is convulsive, the affected limb, when changed from its position, will quickly and forcibly return to its former situation; but when the rigidity is the effect of death, if once overcome, it does not offer any resistance.

In syncopal rigidity, the members are as cold as after real death, but the phenomena succeed so rapidly as to leave no doubt on the state of the individual. (Briand, *op. cit.)*

It is impossible to confound cadaverous rigidity with that which is the effect of congelation. In the last case, all the organs, even the softest, those impregnated with fluids, will be equally hard in proportion to their size. Even the abdomen and its organs, which are soft in ordinary rigidity, become hard when the rigidity is produced by congelation. The skin and subjacent cellular tissue are hardened by congelation, but not by cadaverous rigidity; and on moving a congealed limb, it crackles like icicles when broken.

Physical Proof of Death.—When the muscles do not contract on the application of galvanism, we may affirm that life is completely extinct. (Nysten.) This is the most certain proof of all. (Marc.) Muscular contraction will be excited by galvanism, immediately applied to dead bodies, after hanging, because the death is generally sudden, and some portion of vitality remains in the muscles; but resuscitation does not take place.

Contractibility of the Muscles after Apparent Death.—Individuals who are apparently destroyed in a sudden manner, by certain wounds, diseases, or even decapitation, are not really dead, but are only in conditions incompatible with the persistence of life. If we open an animal immediately after decapitation, the intestines and heart continue to contract spontaneously, the first much longer than the second, which led Baron Richerand to the conclusion, that vitality remained longer in the intestines than in any other part of the body. (Physiology.) It is well known to fowl butchers, that the animals which they decapitate, will, after this operation, make convulsive movements, and perform locomotion for a few seconds.*

Surgical Proofs of Death.—Until putrefaction commences, some degree of vitality remains in the body, and this may be very much protracted in certain cases; timid individuals have ordered in their wills, or dying declarations, that they should not be buried before all surgical means were employed to determine that they were really dead. Accordingly we find, that punctures, incisions, burns with boiling water, or oil, or with red hot iron were tried; and in some cases the deceased persons ordered, that after all medical and surgical means for determining real death had been used, decapitation should be employed. The only conclusive proof of death is putrefaction; and this subject requires to be minutely described in a distinct chapter.

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* Accident made me witness, on one occasion, to this fact. I had to pass from a building near the slaughter-house of a chicken butcher, and observed a young apprentice in the act of decapitating a large turkey. The operation was very dexterously and suddenly performed. Pressure was instantaneously removed from its body, after its head had been chopped off, when the animal assumed its ordinary posture, convulsively attempted to raise its wings, and then walked for three or four seconds across the floor. The youth addressed me with no small astonishment, and exclaimed, "that turkey, sir, is alive, though it seems to be dead! ! Vitality was not suddenly extinguished, even by decapitation of the animal, in perfect health.

CHAPTER IV.

PUTREFACTION OF ANIMAL MATTERS.

Putrefaction in the open Air, Water, and Earth.—There is no sign of death so certain. as *putrefaction*, when it is established; and it is greatly to be regretted that we do not, as yet, possess a complete history of its phenomena, which would enable us to decide with perfect accuracy the exact time that has elapsed since death. But this subject is extremely complicated and obscure, because putrefaction undergoes a train of varieties in its progress; and the alterations which effect it. I shall give as complete an account of it as the present state of science permits. Putrefaction is modified by age, state of the constitution, locality, as in the air, water, and earth, by temperature, humidity, dryness, &c. Thus, animal matters are preserved from its action when they are congealed, and even in very cold weather, when they are in contact with substances which impede their humidity, as lime, muriate of soda, or when combined with tannin, camphor, aromatics, resins, &c.; and when they are deprived of oxygen. Air, which is very dry and hot, dessicates and mummifies the body; whilst warm and humid air very much hastens its decomposition. The fœtus and young infants resist putrefaction in the open air much longer than adults, who present many varieties, according to the duration and nature of the disease of which they died, their state of embonpoint (plumpness), emaciation, infiltration, &c.

Putrefaction in the open Air is generally accomplished in a month: the conversion of the colouration of the skin into green, commences within the first four or five days after death; the epidermis is detached in two days afterwards; the green tint now becomes brown; the internal organs resist the progress of decomposition, as they are not exposed to the air, in the same way that entire subjects resist it more than those that are opened, and as the putrefaction is accelerated in the limbs by incision, which every anatomical student has observed.

A fœtus died in the evening, having been exposed to the air. On the next morning the skin was streaked with green spots, and larvæ were developed on it. On the seventh day, the skin over the parietes of the abdomen was detached, the muscles destroyed, and the viscera reduced to blackish shreds, and exhaled an excessively fetid odour.

Another fœtus that had not been opened, was also exposed to the air; the brown colour of the skin existed on the fifth day, and the epidermis was not separated, but in small shreds, and the viscera were in a perfect state of integrity. (Orfila.)

We know that the very rapid putrefaction in the gas of privies, depends on the great degree of humidity; and it is also necessary to take into account the state of the temperature.

Putrefaction in water is not, in general, completed sooner than six weeks: it is more rapid in running than in stagnant water: the muscles begin to soften, the fat is saponified, and forms ammoniacal margarates and oleates, a kind of alteration which does not take place in the open air.*

Putrefaction in the Earth.—The progress of the putrefaction of the animal body consigned to the earth, will vary according to age, sex, habit, constitution, soil, &c. This will fully appear by the perusal of the following remarks on INHUMATION and EXHUMATION. On the 30th of July, 1828, M. Orfila was requested to be present at the exhumation of the body of a person who was supposed to have been poisoned, that had been buried a month. The gas which escaped from the coffin was extremely fetid after the removal of the body and exposure to the air; but on pouring some pints of the solution of the chloride of lime into the coffin, it was disinfected in a few minutes. The tumefaction was extreme; the skin of the head was of a blackish brown colour, of a white rose colour at the superior part of the face, blackish about the lips and neck; it was streaked with black round the nipple, and of a dirty white colour on the abdomen and sides of the trunk: the scrotum was the size of an adult's head. The epidermis was easily raised, and separated with the nails of the toes; the skin was resistant, and could not be torn with a forceps; the muscles were slightly softened, of a rosaceous colour, and in distinct bundles. On examining the viscera, the stomach was found distended with gas, and the morbid *alterations were as evident, as if the body had been opened* the day after the death of the individual. The liver, spleen, bladder, lungs, and heart, were without odour, and without any trace of decomposition. It was easy to discover the presence of the oxide of arsenic; a few grains of which were found, whitish and hard, about the termination of the ileum.

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* *Margarate* is a salt formed by the combination of margaric acid with a salifiable base. *Oleate* is a salt formed with oleic acid and a salifiable base.

It results, from the observations and researches of M. Orfila (*Traite des Exhumations Juridiques*, 1833), and of many others, that putrid decomposition advances differently according to the following circumstances:—" The causes," says M. Orfila, " relate to age, constitution, sex, state of thinness or obesity, the mutilation or integrity of the body, the kind and duration of the disease, which caused death; to the phenomena which immediately preceded death, or as this had happened after more or less agony, or suddenly; to the time of inhumation, to the appearance of insects on the surface of the body, to the nature of earths or soils, to the depth of the graves, to the naked or enveloped state of the body, to the state of the habiliments, to the presence or absence of a coffin, which may be of oak, deal, lead, iron, &c.; to the atmospheric influences, such as temperature, degree of humidity, &c.

Age.—All things being equal, the dead bodies of very young infants, buried in earth, decompose more quickly than those of adults or old men.

Constitution.—The bodies of individuals of a lymphatic temperament, who die of an epidemic, or even the same disease, will undergo putrefaction very differently; it will be in an advanced state in the one, and have scarcely commenced in the other.

Sex.—All things being equal, the predominance of the lymphatic system, and of the greater quantity of fat in the subcutaneous cellular tissue in woman, generally cause putrefaction to progress more rapidly in her than in man.

State of thinness or obesity.—The latter favours putrid decomposition in bodies buried in the earth.

State of mutilation or integrity of the Subject. Repeated and daily observations have proved the rapidity of putrefaction of dead bodies, which present solutions of continuity; and it is also well known, that contused and ecchymosed parts, in which blood is effused, putrify much quicker than those which are in the opposite condition; and even when there is no loss of substance, and no trace of solution of continuity in the skin. With much more reason will this difference be remarkable, if a contused wound has been inflicted during life.

Genus and duration of the Disease that destroyed life.—Putrefaction advances much more rapidly, in general, in those who have died of acute, than of chronic diseases, which have attenuated the body: the predominance of the fluids over the solids in the first, sufficiently explain the reason of this fact. It would be most curious to determine, by numerous experiments, the comparative influence of the different genera of acute diseases on the developement of putrefaction; but to accomplish this inquiry, it would be necessary to inter several bodies which had been destroyed by encephalitis, pneumonia, gastro-enteritis, &c. It is known, however, that putrefaction advances more slowly after severe hemorrhages, than when the vessels are distended with blood, as in asphyxia; that those who die of anasarca, putrify much more rapidly; that those who perish by small pox, or any other pustulous disease, decompose more rapidly than the former; in fine, that those diseases which deteriorate the blood, are succeeded by rapid putrefaction.

Phenomena which may immediately precede death.—According as death is sudden, or preceded by a disease which continues for some days, as this terminates by a long or short agony, or if the blood be contaminated by the introduction of any virus into it, the progress of putrefaction will be more or less rapid; but we cannot justly appreciate each of these elements.

Epoch of Inhumation.—Putrefaction advances more rapidly in the air than in any other situation; but if decomposition has not commenced before the interment of the body, it will be retarded more than if it had commenced some hours or days previously. It does not commence until cadaveric rigidity has ceased; and it is manifest that the duration of this last phenomenon is not the same in different dead bodies: some are flexible at the time of burial, others are remarkably rigid; the former have commenced putrid decomposition before inhumation. This rigidity is retarded by heat, and advanced by cold, and that which causes a different progress in putrefaction, habiliments of wool, linen, or whether the body is naked, or placed in a cold or warm chamber.

Appearance of Insects.—When bodies are exposed to air, before inhumation, certain flies deposit their eggs upon the skin, which, hatched after some time in the coffin, give birth to other flies, and these, after being fecundated, can still reproduce seven or eight generations, and multiply to infinity.

The insects which show a preference for the dead body, and whose eggs are deposited on its surface are the following:—Mucsa tachina simplex de Meigen; vomitoria, cæsarea, domestica, carnaria, fercata; scatophaga stercoria; thyreophora cynophila; anthrenus; dermestes; hister; necrophorus; sylpha; ptenus fur, imperialis; oxyporus, lathrobium; pœderus; stenus; oxytelus; tachinus; alcochara, noterus; scarites; harpalus julus lepisma.—(For an elaborate article on this head, see Good's Study of Medicine, Helminthia —Worms.)

Flies do not deposit their eggs on the dead body for some time after death, but do so when putrefaction commences. Thus, if we inter two bodies, one on whose surface there are no eggs, and another on which there are millions, the latter will, under the same circumstances, putrify more rapidly than the former; because it is the property of larvæ to destroy our tissues for their nourishment. But some flies as the musca tachina simplex, do not exist in winter, and can have no influence in hastening putrefaction during this season, though they were found in the coffins of persons interred in winter. M. Orfila cannot account for this fact.*

Different Earths.—M. Orfila examined animal putrefaction in four different earths, and of these he gives the following account, which is highly instructive; and the earths are described in his conclusions, which will be found in a subsequent part of this chapter.

Earths hasten or retard putrefaction from many causes.

Situation.—Two soils of the same description, one elevated and on a declivity, the other in a valley, will not act in the same manner upon bodies; the first being much drier, will retard the progress of decomposition, whilst the latter may favour it.

Humidity.—Putrefaction never developes itself when bodies are dried; on the contrary, it progresses rapidly in a humid spot.

Their chemical nature.—By which is understood the composition of the earth, not only as formed of many metallic oxides, sulphate and carbonate of lime, &c., but also its accidental composition, gases more or less fetid, and animal matter in a state of total or partial putrefaction, being contained in them.

I shall also add some experiments made with four different earths: namely, 1. earth taken from the cemetry of Bicêtre; 2. from the garden of the Faculty of Medicine of Paris; 3. vegetable (peat or bog) earth; 4. sand.

1. *Bicêtre earth* is yellowish and chalky, and presents none of the characters of vegetable earths, *(terreau.)* On analysis, it yielded highly azotised organic matter, soluble in water, sulphate of lime, insoluble organic matter, flint and siliceous sand, carbonate of lime, oxide of iron, phosphate of lime, and alum. 2. Earth from the garden of the Faculty, differs from

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* See note in Dr. Fletcher's account of Putrefaction, towards the end of this article.

If the body be sprinkled with pyroligneous acid, or solutions of the chlorurets of lime or soda, or creosote, the incursion of insects will be arrested. It is also said, that pyroligneous acid, rubbed on hop-poles, produces the same effect. It is alleged, that all insects have a great objection to this acid—it cures hams, and is a powerful antiseptic.—M. R.

the former in having much less azotised organic matter, and containing vegetable remains in a very advanced state of decomposition, also a great deal of carbonate of lime, and some sulphate of lime. 3. Vegetable (peat or bog), earth (terreau), is characterized by the large quantity of vegetable remains, which are far less decayed than in garden earth, so that this is a much more vegetable earth; it is principally formed of silex and carbonate of lime. 4. Sand is principally siliceous, and very ferruginous, with some traces, and scarcely any carbonate of lime.

Depth of the grave.—The greater the depth of the grave, the more will putrefaction be retarded, because the earth is colder in proportion to its depth from the surface.

The naked or covered state of the body.—Experience has proved that bodies in immediate contact with the earth, more readily putrify than others; thus a body interred naked will more rapidly decay than one covered with a shroud of any kind, or a coffin.

Atmospheric Influences.—It is sufficient to mention the influence of atmospheric heat and humidity, to convince the reader of their power in accelerating putrefaction. What, says Orfila, will now be thought of the opinion of Burdach on the mode of the putrefaction of the body in the earth? According to him, there are three periods in this decomposition.—(Physiology—Leipsic, 1810).

That the decomposition of a dead human body is gradually accomplished, and may be divided into three periods: the first is fermentation, which lasts *several months;* there is then a swelling of the body by the developement of gaseous substances with extreme fetidity. During the second period, which continues for *two or three years*, the soft parts are converted into a greenish pultaceous matter or a deep brown, the body subsides, because it is volatilized to a considerable extent, and is converted into carbonaceous, sulphurous, and phosphorous hydrogen, forming corbonic acid, ammonia and water in a state of aeriform fluidity. During the third period, the gaseous productions escape; the odour of fetidity is replaced by that of mouldiness, and there remains a terreous, greasy, friable, brownish, and black substance. This is composed of lime, oxygen, and an unctuous carbon, which forms by moisture, and which is not converted, for a considerable number of years, into dust, which mixes with the common earth in the shape of vegetable earth (terreau). Marat concludes, that the time necessary for the decomposition of the soft parts of a dead body is *three years*, when the grave is four feet in depth, and *four years*, when it is from six or seven feet from the surface of the earth.—(Marc. Dict. des Se. Med. 1815.—Art *Exhumation.)*

M. Orfila declares the preceding conclusions erroneous, and calculated to lead the uninformed into error. He has repeatedly observed bodies exhumed, after ten, fifteen, forty, and fifty days interment, which were sunken and not distended, as M. Burdach supposed they must be for *several months*. Thus tumefaction of the body is not always present at the commencement of putrefaction, and it is frequently absent; and when it exists, it does not in general continue for so long a time as indicated by Burdach. As to the second period mentioned by this author—the sinking of the body—it is not correct to state, that soft parts are always converted into a *pultaceous matter;* have we not seen these parts generally dry, reduced into lamellæ (layers), or coralliform filaments, and some of them even imitating a kind of paste-board (cartonnage)? Again, how can we admit that this period continues for two or three years, whilst in most of our observations, the bodies were almost reduced to skeletons at the end of fourteen, fifteen, or eighteen months, even though they had been interred in coffins, and enveloped in linen? Lastly, the greasy matter that remains during the last period of putrefaction, is not earthy nor friable, it is a sort of soft oleagineous cart-wheel grease (cambuois mou.)—*(Orfila, op. cit.)*

There are, however, many shades of difference in the progress of animal putrefaction. Bodies have remained perfect after having been buried for many years. General and medical writers have recorded numerous facts of this kind. Limprecht has noticed a curious case:—*De Manu in sepulchro ultra seculum ab omni putredine* *conservata.*—He also states, that in passing a convent in Narbonne Gaul, he saw several bodies in a state of preservation, which had remained a long time in their sepulchres. Faber mentioned a singular case to Hildanus. *De cerebro non putrefacto in cadavere quinquagenis annis sub terra reposito.*

The catacombs at Kiof or Kiow, in Polish Ukraine, and those near Palermo, are said to contain several bodies in a state of preservation. Many other examples are recorded in a note towards the end of this article.

Sir E. Home states, that the bodies in Shoreditch church, London, are converted into adipocire.—(Phil. Trans. 1813). The fact has been observed in the church-yard of St. Martin-Le Grand. I may also observe, that there are two church-yards in Dublin, in which putrefaction is effected very differently. In St. Michan's, the bodies are converted into a adipocire, as the soil is remarkably dry; in St. Kevin's, the soil is so moist, that while a grave is being made, it becomes nearly filled with water, and here the dead body is decomposed in a very short time. The exact time when a dead body is partially or completely converted into adipocire, has been the matter of legal inquiry. Dr. Male, one of our earliest writers on Medical Jurisprudence, relates the following interesting case :—

At the Lent assizes held at Warwick, in the year 1805, a cause was tried, in which a gentleman, who was insolvent, left his own house with the intention, as it was presumed from his preceding conduct and conversation, of destroying himself. Five weeks and four days after that period, his body was found floating down a river. The face was disfigured by putrefaction, and the hair separated from the scalp by the slightest pull; but the other parts of the body were firm and white, without any putrefactive appearance. The clothes were unaltered, but the linen was exceedingly rotten. On examining the body, it was found that several parts of it were converted into *adipocire.* A commission of bankruptcy having been taken out against the deceased a few days *after* he had left his home, it became a question of great importance to the interests of his family, to ascertain whether he was living at that period. From the changes which the body had sustained, it was presumed that he had drowned himself the day he left home; and to corroborate this presumption, the evidence of *Dr.*, now *Sir George, Gibbs*, of Bath, was required, as he had lately been engaged in experiments upon this subject. He stated on the trial, that he had procured a small quantity of this fatty substance, by immersing the muscular parts of animals in water for a month, but that it required five or six weeks to produce it in any quantity. Upon this evidence the jury were of opinion that the deceased was *not alive* at the time the commission was taken out, and the bankruptcy was accordingly superseded.

Sir George Gibbes, found, that lean beef, secured in a running stream, was changed into fat in three weeks, and into adipocire in a month, but not in any quantity, sooner than five or six weeks.—Philos. Trans. 1794. Grave diggers assert, that a period of three years is required to change a human body into adipocire. They doubtlessly refer to bodies buried in earth, or in moist church-yards, and not to those immersed in water. It does not form when the body is placed on the ground or freely exposed to the air.—Partington's British Cyclopædia, division Nat. Hist. p. 36.

The conclusions of M. Orfila, drawn from his experiments on four bodies, interred in different soils in Paris, in 1830, are the most satisfactory, so far as they extend, that have been published. The four earths, were sand, the earth of the cemetry of Bicêtre, the earth of the garden of the Faculty, and terreau, or vegetable earth: 1. that putrefaction did not progress with the same rapidity in the four different earths on which the observations were made; 2. that it was much slower in the sand, and much quicker in black humid earth (terreau*) than in any other earth, until a certain quantity of adipocire be formed*; 3. at this epoch, putrid decomposition has made, on the contrary, much greater progress, in those places in which there was least rankness, as in the *earth of Bicêtre* than in the (terreau) and in the earth of the garden of Faculty, which contains more of it; and that if in sand, where there was no soap found, putrefaction was much less advanced, that would intimate that this earth enjoys, to a great degree, the property of retarding decomposition; 4. that all earths do not equally possess the power of effecting the saponification of our tissues, and that in general (terreau) and vegetable earth seem to be those that best and most quickly produce it; 5. that this fatty transformation appears to begin from the skin and subcutaneous cellular tissue, and afterwards extends to the muscles; 6. that whatever may be the rapidity with which putrefaction, until the period at which saponification has attacked a sufficiently large part of the skin, it stops in some measure, from that time, or, at least, does not advance in the same progress, then instead of softening more and more, of becoming pultaceous, and of disappearing, the subjacent tissues become adipocire (gras), and terminate by forming a greyish white, dry mass, in which it is no longer possible to recognize them. (*op. cit.*)

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* Terreau: A black carbonaceous pulverulent substance, which remains after the putrefaction of vegetable and animal matters. *Dict. des Termes de Med. &c.* Par M. M. Begin, Jourdan, &c. According to the Dict. of the Acad. it is vegetable earth. In the back settlements of America, there is a rich mould formed by the detritus or remains of decayed vegetables, somewhat similar to peat or bog earth, sometimes called peat or turf mould.

In all trials for murder, the medical witness may be called on to state, how long the deceased has been dead; and the preceding observations will assist him in giving a probable, and in many cases, a positive answer.

In concluding this important subject, I deem it essentially necessary to cite the latest and the best British physiologist on the putrefaction of organic matters; and I quote his work freely, as it has issued from the press since the preceding remarks were written.

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* These results do not agree with those which those which Thouret is said to have mentioned, in a report made to the Royal Academy of Sciences, in 1738, by Lémery, Geoffrey, Hunauld. The experiments of these learned individuals, induced them to admit, that in genereal, it is in proportion to its facility of absorbing or transmitting gases, that putrefaction in earths presents many varieties; thus, dry sand would, of all earths, be that which would favour most the decomposition of bodies; whilst argillaceous and compact earths would retard it. All our researches to discover, this report having been fruitless, it is impossible for us to judge of the value of the experiments on which it was based: and the results of which appear so extraordinary.—*(Orfila).*

The following account of putrefaction will be found in Dr. Fletcher's Rudiments of Physiology, Edinburgh, January, 1836, and throws great light on the subject:—

"The more or less rapid spontaneous decomposition of organic matters, if ternary or quaternary, when deprived of their irritability or vitality, arises from the complexity of their combination being such as rarely to allow of the affinities of any of their elements being fully satisfied. The oxygen in them, for example, is not in sufficient quantity to saturate their hydrogen and carbon—therefore they are all inflammable; and the constant tendency of all their elements to run into binary, instead of ternary or quaternary compounds, is such as to effect, under favourable circumstances, their speedy separation. The most remarkable kind of spontaneous decomposition of quaternary organic compounds is putrefaction. In this case, if the substance which is about to undergo it, whether vegetable, as extractive or animal, as sodo-albumen or gelatin, be exposed to the atmosphere, it first acquires from it more oxygen, and thus are formed, with a portion of the hydrogen and carbon, water and carbonic acid. In the mean time, other portions of each of the latter, uniting together, form carburetted hydrogen; while the remainder of the hydrogen, uniting with the nitrogen, forms ammonia—the distinctive product of this kind of decomposition. This process is commonly very rapid in animals suddenly deprived of their irritability, as by electricity, &c. and is favoured by any means which either diminishes the cohesion of the particles of the substance, or exerts an affinity for any one of the resulting binary compounds, the free access of the atmosphere being, of course, essential to it. It is accordingly in the former of these ways that a moderate temperature, such as that between 60 and 80 degrees, and a moderate supply of moisture, promoted, of course, by the contact of deliquescent salts, seem to operate; while it is in the latter way that lime and other matters generally called septic, which predispose to the formation of carbonic acid, &c. appear to act.* On the other hand, the process is retarded by any means which either increases the cohesion of the particles of the substance, exerts an affinity for the quaternary compound as it is, or excludes the air. It is, accordingly, upon the first of these principles, that either great heat or great cold seems to operate, the former by drying up, and the latter by congealing the moisture;† it is partly upon the first, and partly upon the second principle, that numerous matters, commonly called antiseptic, such as alum, nitre, sea salt, and corrosive sublimate, appear to act; while it is upon the third principle chiefly, that keeping the substance in full and well-stopped bottles, or in carbonic acid or other gases, or smoking it, or imbuing it with wax, honey, sugar, gum, resin, balsam, pitch, paint, varnish, oil of turpentine, alcohol, vinegar, and so forth, seems to produce the effect in question.‡ If, again, a substance, susceptible of putrefaction be kept in water, it undergoes these changes more slowly; and, provided there be present at the same time any acidifiable matters, such as stearin or elain, the results are different from those just stated. In this case the water, if not retained undecomposed by a mixture with it of alcohol, or any other substance having a strong affinity for it, first affords the requisite oxygen, and the same, or nearly the same results as in the former case are at first produced. But now the ammonia, instead of being dissipated, seems to remain in contact with the substance, and to predispose the acidifiable matters to absorb oxygen and to become acid, which acid, subsequently uniting with the ammonia, gives rise to a kind of salt or soap, called adipocere.* It was till lately believed, that none but the fibrinous parts of animals, when interspersed with fat, were capable, under favourable circumstances, of undergoing this change; but it has been recently established that the albuminous and gelatinous parts are equally liable to it.† Lastly, quaternary organic compounds, when below ground, undergo changes, according as the soil is either dry or moist, similar to those which they undergo in either air or water; but, generally speaking, more slowly than in either, particularly if they have been well inclosed and buried deep: if, however, such changes have begun to take place previously to burial, it is important to know that they are not retarded by this measure. The decomposition of interred human bodies has been said to be, under ordinary circumstances, perfect at the expiration of about three years, if the grave be four feet deep; and of about four years, if it be six.‡ Upon what principle it is to be explained that such spontaneous decomposition of the animal body does not always take place, even when no extraordinary means have been employed to prevent it, or certainly not within the usual period, is quite unknown. Such, however, is said to have been the case in not a few very remarkable instances,* but the authenticity of the majority of these is somewhat questionable.

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* Hence the common practice of putting lime into the coffins of persons who have died of really or reputedly contagious diseases—a practice somewhat superfluous, perhaps, since such diseases pretty certainly cease to be contagious, long before decomposition, however accelerated, can take place.

† It is sufficiently well known, that dead bodies, left either on burning deserts, or in the glaciers of Alpine districts, do not undergo this change.

‡ It is remarkable how soon the practice of embalming, which is supposed to have originated in a belief in the celebrated doctrine of the metempsychosis, led to a knowledge of the influence of all these solid and liquid substances in preventing the decomposition of the dead, with the exception of corrosive sublimate, oil of turpentine and alcohol, with which mankind were not acquainted till the age of the Arabian physicians, who introduced, for the first time, the art of sublimation and distillation. The word mummy is said to be derived from the Egyptian *mum*, or wax, as embalming is from the *balm* employed in the process. (See Dr. Granville's and Mr. Pettigrew's recent Essays.) The ancient Jews, Greeks, and Romans, commonly burnt their dead; but were accustomed to preserve their organic rarities in honey, as we do in alcohol. Savages often, in the present day, smoke-dry their dead by way of preserving them; but in some places, as Nova Scotia and Otaheite, as well as among the Guanches, an aboriginal tribe of Teneriffe, embalming seems to have been in use from time immemorial.

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* This singular effect of water, as "as a sore decayer of your whoreson dead body," was noticed for the first time during the extensive exhumations which took place at the Cimetiere des Innocens, at Paris, about fifty years ago, and was most remarkable in those bodies which had been buried about three years. It was proposed to turn the discovery to useful purposes first by Dr. Smith Gibbs (*Phil. Trans.* 1794 and 1795), while the first satisfactory explanation of the *rationale* of the process was given by Chevreul.

† This fact has been established by Dévergie, by whom the spontaneous changes which the several parts of the human body undergo in water, have been particularly investigated.—(*Ann d'Hygiène Publique*, 1829.)

‡ Petit. Orfila refutes this statement.—See page 507.

During all the above, and other decompositions of organic matters, myriads of minute plants, called mould, &c. and of animalcules, according to the nature of the matters so decomposed, usually manifest themselves. This phenomenon was, till lately, in general attributed to the development, in the matters undergoing decomposition, of minute germs, which were presumed to be universally disseminated, but to become developed only when they met with a congenial soil, such as that afforded by the products of decomposition.† Of late, however, this hypothesis has been, in a great measure, superseded by another, which ascribes these plants and animalcules to the retention, by a portion of the extractive, sodo-albumen, gelatin, and so forth —the globules of which, it must be remembered, are regarded as monads, or organic elements, or molecules—of their supposed aptitude for life, so that certain globules of these matters take on, more or fewer of them together, the form of distinct organized beings.‡ It has been already mentioned, that the highest tribes of plants and animals have been supposed to differ from the lowest, as well as the perfect plant and animal of every tribe from its earliest germ, only in the circumstance of more monads or organic molecules — the primary, as well as continual source of which is the aliment—entering into their composition. Hence it is easy to conceive that, as a progressive coalition of these molecules might, at the creation, form in succession each higher species of organized beings from those below it, as well as during the development of each individual in its generation, carry it successively through all the inferior types till it finished with its own, so a separation of the same monads or molecules might, either as passed off with the excretions, or on the final decomposition of each individual of a higher species, again give rise to innumerable individuals of a lower grade; the same being ready subsequently to contribute, either by receiving into themselves new monads or organic molecules, or furnishing the same to other organized beings, to the formation again of any mode of organized existence superior to themselves.* And that such is the origin of the mould and

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* It is related that the body of Tullia, the daughter of Cicero, was discovered perfectly sound in the pontificate of Paul III., after having lain in the ground fifteen hundred years; and the same was the case, according to Lactantius, with the body of Maximianus, which was disinterred at Marseilles, after eight hundred years' interment. It is said also, by Jones, that the body of Vladimir, who first introduced Christianity into Russia, is still to be seen quite entire, with that of his mother likewise, in the church of St. Sophia, at Novogorod; as is that of the Duc de Croz, covered by a glass case, in the church of St. Nicholas, at Revel. A similar story is related of the corpse of a man of the name of Bancroft, interred in St. Helen's church, Bishopsgate, London, which was annually exposed for many years, in conformity with his will, and constantly found unchanged. Numerous other accounts of this kind are on record; but they are for the most part so ill authenticated, that it would be idle to speculate upon them.

† Harvey—the author of the celebrated axiom, "Omnia ab ovo"—Leeuwenhoek, Redi, Valisnieri, Swammerdam, Spallanzani, Bonnet, Linnæus, Ehrenburgh, &c.

‡ This "bold and fanciful hypothesis," as it is called by Roget, originated with Tuberville, Needham, and Buffon, and has been adopted by Priestley, Ingenhouz, Lamarck, G. R. Treviranus, O. F. Müller, Tiedemann, H. M. Edwards, Dutrochet, Dumas, and Prevost, and many more. The doctrine, although allied to the ancient hypothesis of "Equivocal Generation," is not

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identical with it; since, while by the latter certain matters were supposed to be vivified, *de novo*, by the heat, either evolved during putrefaction, or communicated by the sun—" being a god, kissing carrion"—and thus to assume the form of distinct animalcules; by the former, these matters are believed to be possessed of innate vitality, and to acquire merely each an independent existence by separation.

* Haud igitur penitus pereunt quæquumque videntur,
Quando aliud ex alio reficit natura; nec ullam
Rem gigni patitur, nisi morte adjecta aliena.

Well might the ancients say, if this be true, Death is the Mother of Life—*Nascimur ad mortem, morimur ad vitam*—since what is called the death of a tree or a man is nothing more than the separation of a vast bag of mould or animalcules, which, as Dr. Prichard expresses it, "had been tied up together, and obliged to subsist within one bark or skin," into fragments, which may either coalesce together into some higher tribes, indiscriminately, of plants or animals—" de même," says Edwards, " que les sels affectent en crystallisant" —or go to form a future tree of the same kind, or a future man, by entering with their food. " Here's fine revolution, and we had the trick to see it." It had been long known that " we fat all creatures else to fat us, and we fat ourselves for maggots"—it had been long known that " a man may fish with a worm that hath eat of a king; and eat of the fish that hath fed of that worm;" but it is only lately that it has been suspected that the said maganimalcules in question has been inferred from the globules of such organic matters having been observed to be, in all such cases of spontaneous decomposition, in constant agitation; and from such mould and animalcules having been detected in infusions of organic substances, during their decomposition, even when these substances have been previously exposed to a heat sufficient, it is presumed, to destroy all germs, when only distilled water has been used, and when the infusion has been kept constantly *in vacuo.*[*] But that the doctrine of the perpetual transmigration of any supposed organic molecules, whether well or ill-founded, cannot apply to the globules of extractive, sodo-albumen, gelatin, &c., which are pretty certainly not identical with them, and have not the aptitude for life alluded to, is obvious; and it is equally so that it cannot be true of the really organic molecules, if we believe that it is into extractive, sodo-albumen, and so forth, that these molecules, or the organized tissues composed of them, are, on the cessation of their vitality, converted. It is a fair objection, likewise, to the hypothesis in question, or rather to an immediate corollary from it—namely, that the whole of organized nature consists at all times, and has at all times consisted of the same definite number of organic molecules[†]— that a very considerable proportion at least of

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gots and the said worms were, *ab origine*, part and parcel of this lord of the creation, as he was a compound of millions of their fraternity; and that, as when a man has been devoured by maggots, it is only that his individuality is multiplied, so every time he takes a meal, it is only that the individuality of myriads of other organized beings is destroyed. "Il n'y a point," says Cabanis, "la mort pour la nature."

[*] G. R. Treviranus, &c.

[†] It would be a curious speculation to enquire, upon the principles of the advocates of this doctrine, in what way the determinate complement of the organic molecules on the surface of our planet has been, at any given time, disposed of; that is to say, what proportion has been appropriated, first, respectively to the vegetable and animal kingdoms, and afterwards, to each individual species of plants and of animals. It would appear that some of them must be very considerably minus what they were in "the mysterious week—the teeming work-days of the Creator," when the whole human race consisted of only a single pair, now that it numbers, at the lowest estimate, five hundred millions of individuals! In order to maintain any given balance of power in the organic kingdom, it is obvious that, upon these prin-

extractive, sodo-albumen, &c., is certainly resolved into merely mineral substances in every instance of the decomposition of organic matters—else whence the carbonic acid, carburetted hydrogen, and ammonia which they evolve? and as these substances must—unless the organic kingdoms of nature are gradually failing from off the face of the earth—be continually renewed, in the same proportion, by combinations of mineral substances, there seems to be no good reason why the whole of such substances should not be capable of being so resolved and so renewed.* It would be premature in this place to expatiate

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ciples, each organized creature must furnish at its death precisely as many organic moelcules as it appropriated to itself during its growth, besides continually supplying by its excretions, as many as it receives with its aliment; and all these must, of course, be distributed again, directly or indirectly, over exactly the same tribes of organized beings as originally provided them. If then, in any tribe of such creatures, there should be in a given time a greater number of growths than of deaths, as happened among the patriarchs of old, it follows, that these tribes would soon be in excess, but in exactly the same proportion other tribes must fail. But the failure of a tribe of Iguanodons or Plesiosauri, of Megatheria or Mastodons, which were, perhaps, as Mr. Kirby suggests, too large to enter the ark (*Bridgewater Essay*, 1835, p. 18) would go further to maintain this excess, than that of thousands of tribes of smaller organized beings; and this was, it may be said, the final cause why these unwieldy monsters are no longer met with. They were merely vast masses in reserve, to be cut down afterwards, among other things, into human beings!

* Raspail accordingly, although he believes in the ultimate molecular or vesicular structure of organized beings, still does not regard these as unchangeable, but represents them as continually decomposed on the one hand, and recomposed, out of oxygen, hydrogen, and carbon, on the other! *Nouv. Syst. de Chem. Organique, translated by Dr. Henderson*, 1834,) and the same is the opinion of Dr. Prout, who conceives, after Paley, that the "organic agent" in its simplest form constructs out of inorganic matters the simplest order of organic molecules, that in a more complicated form it constructs a second and higher order of such molecules and so on, till, becoming progressively more and more complex, it constructs at length those of which the highest tribes of organized beings consist.—(*Bridgewater Essay*, 1834) It is well known that plants, and perhaps also animals, can feed on carbonic acid; and the fact also already mentioned of certain plants and animals appearing to thrive on other purely inorganic substances, such as water, as well as that of wolves and rein-deer, and even human beings, as the Ottomacs and other people, subsisting for months together upon a kind of earth, which, according to Humboldt, is "destitute of all organic substance, oily or farinaceous,"

on the obscure subject of generation, involving as it does the important question of the nature of life, which is so soon to occupy our attention; but it may be allowable to state here, that nothing hitherto adduced, in support of the hypothesis now under consideration, seems to be at all less easily explicable on the old doctrine of universally diffused germs, than on the new one of perpetually transmigrating organic molecules. With respect to the constant agitation of globules said to be observed in the infusions of organic matters during their spontaneous decomposition, a similar phenomenon has been noticed during the mechanical separation of particles of sulphur, flint, glass, manganese and other mineral substances, in which the existence of organic molecules was out of the question;* and with respect to the development, in the former, of mould and animalcules, when they have been exposed to heat, immersed in distilled water, and kept in *vacuo*, it is easy to conceive that minute germs may have been as competent to resist heat without destruction as organic molecules; and that such minute germs may as well have been contained from the first in and about the matters undergoing decomposition, as that they could find access to them only during their decomposition with the water or the atmosphere.† Nor will the countless myriads of new

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is decidedly favourable to the idea that the supposed organic molecules, as they are decompoundable, so they are capable of being recompounded; and perhaps it is only, as Dr. Prout says, by "saving them the labour of forming the proximate principles"—in other words, the supposed organic molecules—"from their elements," or by affording these elements of the precise character and in the exact proportions required for the purpose, that organic matters constitute the most appropriate aliment for organized beings.

* Fray; (Sur l'Origine des Corps Org. et Inorg. 1817.) R. Brown; Brewster. (Edinburgh Journal of Science, 1829.)

† It is not less likely that insects, prompted by instinct, should deposit their eggs in substances susceptible of such spontaneous decomposition as may afford a congenial soil to the young animal, than that they should do so in substances already undergoing such decomposition; and that they do the latter is universally admitted—nay that, deceived by the putrescent odour of certain plants, as some species of Phallus and Agaricus, they sometimes choose these inappropriate receptacles for the purpose. That at least

beings, frequently so developed, appear to be any objection to this explanation, when we reflect on the incalculable rapidity with which, once evolved, they perpetuate their species.* Upon the whole, the difficulty of accounting, upon commonly received principles, for the phenomena in question, does not appear to be so great, as to warrant our adopting so overwhelming an hypothesis, as that proposed as an alternative, in order to explain it.—*(Fletcher's Rudiments of Physiology. January,* 1836.*)*

CHAPTER V.

NUISANCES, LEGALLY AND MEDICALLY CONSIDERED.

The next part of hygiene, regards arts, trades, and manufactures, and is the consideration of the laws regarding nuisances, which are so beneficial to the preservation of public health. I shall notice the chief enactments under this head, and omit the minor ones, as the medical practitioner is rarely consulted with respect to them.

"A nuisance is legally defined; any thing that worketh hurt, inconvenience, or damage to the person or property of another." Nuisances are of two kinds, *public* or common nuisances, which affect the public, and are an annoyance to all the king's subjects; and *private* nuisances, which injure individuals. Thus, if a man sets up some offensive manufacture or trade, as a tanner's, tallow chandler's, or a soap boiler's, &c. which annoys his neighbour, or injures his health, he has

some of the larvæ then which are developed during putrefaction result from ova cannot be questioned; and it seems *a priori* very improbable that there should be any second origin for the rest.

[*] It has been computed by Linnæus that three flesh-flies and their immediate progeny will devour the carcase of a horse in less time than a lion could have done it, the female not unfrequently giving birth to 20,000 larvæ at a time, and a few days being sufficient for the production of a third generation. See p. 504.

a remedy by action. Common nuisances are abated by indictment.

All trades and manufactures, which are noxious, highly disagreeable, or dangerous to health, except when carried on for many years in accustomed places, are nuisances. The smoke of a brewery is at least destructive to comfort, and may be injurious to health. A smelting house is a much greater nuisance, as it gives out larger volumes of smoke, together with the poisonous fumes of sulphur, lead, antimony, and arsenic, which so deteriorate the atmosphere, as to destroy vegetation, and to poison cattle that feed on the adjacent herbage. The fumes which arise from manufactories of sulphuric, nitric, muriatic, and other acids, when carelessly prepared in large quantities, are next in order of noxiousness to metallic fumes, and are a nuisance. (Rex. v. White and Ward, Burr. 333.)

The division of a house into lodgings, and filling it with poor people, renders it more dangerous in the time of sickness (query during the prevalence of epidemics), and plague, is a nuisance, and indictable. (2 Roll. Abr. 199—Paris and Fonblanque.*) Dirt, filth, &c. in a street, is also a nuisance.

It is enacted by 57 George III. c. 22, that if any person shall throw, or suffer to be thrown or remain, any ashes, dust, dirt, rubbish, offal, dung, soil, blood, or other filth, or shall kill, slaughter, scald, dress, or cut up any beast, &c. in or near any street, (within the act) as that any blood or filth shall run or flow over the pavements, such person, on conviction before any justice of the peace, shall forfeit and pay not less than forty shillings, or more than five pounds for each offence.

This law is not sufficiently enforced in our meat and vegetable markets. The quantity of offal, blood, and putrescent vegetables, in some of them, is disgraceful to the local authorities, and most dangerous to passengers. The worst, and most fatal fevers, have arisen from such causes.

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* Fever was most destructive in the Earl of Meath's liberty in Dublin, a narrow ill-ventilated district, until the window tax was abolished. This is attested by the Annual Reports of the Physicians to the Cork Street Fever Hospital, the largest in Europe, from 1808 to 1822, when the impost was removed. This tax is still in force in England, and favours the diffusion of epidemic and contagious diseases among the poor.

Noises, whether by day (Tennant v. Jones, K. B., 1821,) or by night, (Rex. v. Smith, 2 Str., 704,) are nuisances, as these not only render life uncomfortable, but are prejudicial to the health of invalids. The Court of Chancery enforced an agreement not to toll a church bell. (Paris and Fonbl.) I have known a lady, who was killed in the city by the tolling of such a bell, which was close to her apartment. All remonstrance with the pious ringer was useless.

There are many other transitory nuisances, such as the removal of the contents of privies, called night soil, "garbage, soap boilers' lees, and other stinking refuse of animal or vegetable matter."

It is extremely difficult, in consequence of peculiarity of constitution and habit, to determine the injurious effects of many of the preceding nuisances on certain individuals, or on the public at large. The remarks of Dr. Paris on this point point are so apposite, that I shall cite them.

"As to the physical effect of each particular species of bad smell, there may always be some doubt, and much contrariety of evidence is to be expected; this however is certain, that those stenches which may be innocuous to persons in full health, are by no means so to invalids or persons of irritable nerves or stomachs; and to pregnant women they are generally allowed to be dangerous.*

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* Dr. Garthshore has observed that women, during the period of utero-gestation, on account of the increased irritability of the system at that period, are frequently affected by odours, that at any other time would not have produced the slightest impression; and this experienced practitioner was of opinion, that the dangerous convulsions which sometimes seize the patient towards the end of a tedious and difficult labour, may arise from the long continued inspiration of the air of a close and unventilated chamber crowded with attendants and friends.

This observation suggests to us another circumstance which, though it has never, we believe, been legally treated as a nuisance, well deserves to be so considered; we allude to the public exposure of disgusting objects for the purpose of exciting charity. The vagrant laws are evidently ineffective for the purpose of removing them, nor has the Society for the Suppression of Mendicity been much more successful; those who have observed the per-

Habit has also a powerful operation in diminishing the deleterious effects of such effluvia; instances daily occur in which the fumes of certain manufactories affect strangers in the most violent degree, while the artisans engaged in the occupations which produce them; or the persons accustomed from their residence to the full force of their influence, scarcely experience any inconvenience; nay, in some cases, they would even seem to derive a degree of benefit from such an atmosphere, and to suffer whenever they quitted it;* like the criminal recorded by Sanctorious, who fell sick when taken out of an infected dungeon, and did not recover until he had been returned into the impure air to which he had been so long habituated. We introduce these remarks for the purpose of showing, that persons immediately engaged in an indictable manufactory, are not only morally, but physically, incompetent to give evidence in proof of the extent of the mischief it may create: in addition to which it must not not be forgotten, that in those works in which are carried on the fusion and volatilization of metals, the workmen employed in the interior of the building escape the deleterious fumes which pass up the flues, and spread desolation over the surrounding district. These views will moreover enable us on many occasions to reconcile the conflicting testimony which is so often given on trials of nuisance, without in the least impeaching the veracity or sincerity of the individual witnesses engaged in the contest."

Every modern physiologist will consent to these conclusions.

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tinacity with which some sturdy vagrants persecute pregnant females, obtruding on their view some ulcerous sore, stump, or deformity, will agree in the necessity of some more vigorous measures than have been yet employed for the abatement of this species of nuisance.

* The Author well remembers being sent for on a professional visit to the great copper works at Hayle, in Cornwall, and being told by a man, who had been a smelter for more than half a century, that the occupation was remarkably healthy, and that those who were engaged in it escaped the ordinary maladies of the season and country. "The smoke," said he, "kills all disorders, especially fevers." This anecdote is at least sufficient to show the force of their prejudice.—*(Paris.)*

The following arrangement of nuisances will be found in the conjoint work of Dr. Paris and Mr. Fonblanque, and is one of the best hitherto published in this country.

"There are in law many kinds of nuisance; but we shall confine ourselves to the consideration of those only which can be made the subject of medical or chemical investigation; these are such as are directly or indirectly detrimental to health, whether general or individual; or are destructive to comfort; or injurious to property: obstructions to the free course of air, light, and water, volumes of smoke, and noisome smells fall under the two first descriptions, while the fumes of some manufactories combine every species of annoyance.

The question, how far the salubrity of the atmosphere may be affected by the effluvia of particular manufactories, is one that the medical practitioner is often called upon to decide; and upon such an occasion let him beware that his judgment be not swayed by the fastidiousness of the surrounding inhabitants, nor warped by the clamours of invidious rivals or interested opponents; as a man of science and integrity he is called upon to decide between two parties equally valuable to the state,—between the health and comfort of the citizen, and the prosperity of the manufacturer.

The manufactories and occupations which have been considered exceptionable, for reasons to be hereafter enumerated, may be arranged under four divisions, viz.

1. Those, during whose operation gaseous effluvia, the products of putrefaction or fermentation, escape into the atmosphere, and are either noxious from their effects upon animals, or insufferable from the noisomeness of their smell: such as the steeping of flax and hemp; the manufacture of catgut; slaughter-houses; starch manufactories; tanneries; the feeding of swine; and the several occupations of horse slaughterers; skinners; fellmongers; curriers, &c. &c.

2. Those, where, by the action of fire, various principles are evolved, and diffused, in the form of vapour, or gas; the inhalation of which is not only disagreeable to the senses, but injurious to the health; as the process of brewing; the formation of various acids; the incineration of animal sub-

stances, as practised by the manufacturers of hartshorn; Prussian blue makers; roasters of horn for lanterns; glue makers; varnish makers; soap boilers, and renderers of tallow; smelting houses; gas works; brick kilns; turpentine distillers, and rosin makers, &c. &c.

3. Those, which are capable of yielding waste liquids, that poison the neighbouring springs and streams, as gas works, starch manufactories, dying houses, &c. &c.

4. Those trades, whose pursuit is necessarily accompanied with great noises, as those of copper-smiths; anchor-makers; gold-beaters; tin-men; trunk-makers; proof-houses (where cannons are proved): the tilting of steel; forging bar iron; flatting mills, &c. &c."

Division 1. *Gaseous effluvia, caused by putrefaction or fermentation, which taint the atmosphere, and are noxious to animals, or insufferable from the noisomeness of their smell.*

I. *Effluvia from the steeping of flax or hemp.*—Almost all vegetable and animal substances, when deprived of vitality and exposed to moisture, air, and a certain degree of temperature, sooner or later undergo the putrefactive fermentation; and evolve carburetted and sulphuretted by hydrogen, carbonic acid, and nitrogen, each of which is injurious to health, and often, destructive to life. The first and second act on the human body as sedative poisons, while the third and fourth induce asphyxia. The preparation of hemp and flax presents an illustration. These substances are placed in stagnant pools for the purpose of separating the vegetable fibre from the stems; and when this is effected by the putrefactive process, an effluvium arises, which is highly offensive and prejudicial to health; while the water is so poisoned as to destroy fish contained in it, and to prove noxious to cattle that drink it. The odour of it resembles that of bilge water in the hold of a ship. The gaseous emanations from it have frequently caused different types of malignant fevers, as typhus, remittent, and intermittent. It is therefore evident, that the preparation of flax and hemp for commerce, ought to be carried on at some distance from towns and cities. This regulation is enforced in some parts of Italy. In proof that the effluvia arising from these substances may cause fevers of the worst type and other diseases, I shall give two or three examples.

The celebrated Zimmerman attested, that the effluvia from this source, caused a malignant fever in a family in which it had commenced, and subsequently spread through the adjacent country. Lancisi observed, that a fever was caused at Constantinople, in consequence of the transmission of hemp from Cairo in a wet and unfinished state, which was placed in the public granaries, so that it might complete fermentation during the summer. Lastly, an epidemic dysentery has been annually observed at Helmsted every autumn, which prevailed for several weeks, while the flax is immersed in the Aller. I have, more than once, encountered the effluvium arising from flax during the process of putrefaction; and found it most disagreeable. Though in good health, I experienced nausea, vertigo, and great prostration of the vital powers; and I feel convinced, that had I remained near it after the invasion of these symptoms, I should have fainted; and, perhaps, might have been seized with a malignant fever. But M. Parent Duchatelet arrives at a different conclusion. He states, that agriculturalists have long observed, that beasts frequent those places in which hemp is steeped, and drink the water that surrounds it. He is of opinion, that the pretended accidents, and the pretended epizootes were probably the work of the imagination, and not the result of observation.—*(Annales d'Hygiène Publique et de Medecine Legale.* March, 1832.)

Starch making.—The manufacture of starch is considered a nuisance on account of the diffusion of a fetid acetous vapour, which arises during the fermenting of wheat or other vegetable matter. Tourtelle recommends the evolution of ammoniacal vapour for the neutralization of the acetous.—*(Elemens d'Hygiène.)* Dr. Paris comments on this point as follows:—

"The manufacture of starch can scarcely be considered in itself a nuisance, for although it be necessary to produce the acetous fermentation, in order to remove from the fecula any colouring matter, yet if sufficient attention be paid to the operation, and the water be properly let off from the settling vessels, no inconvenience can arise. A nuisance, however, of considerable magnitude may incidentally attend these manufactories, from the number of swine which are constantly kept by the starch-maker, and the profit of which forms a part of his speculation, and which is so considerable, that he can generally afford to sell the starch at prime cost, relying wholly upon the former trade for his profits.

The starch-makers are occasionally exposed to great heat, from one hundred and ten to one hundred and fifty, and sometimes to two hundred degrees. They are only a few minutes exposed at a time, but they often work the whole day, in a temperature above one hundred. They are, however, employed more frequently in wet rooms, which are open to currents of cold air. They are subject to inflammation of the air passages, as catarrh, pulmonic inflammation, and also to rheumatism. Few can bear the employment after the age of forty years, and seldom survive more than two or three years afterwards.—*(Thackrah, op. cit.)*

II. *Effluvia arising from animal substances.*—The effluvia arising in manufactories of catgut, varnish, glue, size, of purifying fish oil, those produced in slaughter-houses, in horse slaughter-houses, tanneries, swine yards, dog kennels, &c., are most properly considered injurious to health, and therefore, nuisances. Mr. Thackrah's remarks on some of these are highly instructive, as they were derived from personal observation.

"*Slaughter-houses.*—The atmosphere of the slaughter-house, though sufficiently disgusting to the nose, does not appear to be at all injurious to health. The mere odours of animal substances, whether fresh or putrid, are not apparently hurtful; indeed, they seem to be often decidedly useful. Consumption is remarkably rare among the men employed in the slaughter-house. If we see a phthisical youth in the fraternity, we shall generally find that his parents, aware of an hereditary disposition to consumption, brought him up to the business with the hope of averting this formidable malady. The atmosphere of the slaughter-house, imbued with a foreign admixture, is moreover less susceptible of those natural changes, which produce epidemics. From this circumstance, conjoined with their diet and habits of life, butchers are less subject than other trades to Cholera and Dysentery. To the same favourable combination, we attribute their comparative exemption from diseases, considered as infectious or contagious. Of five hundred and twenty patients taken to the House of Recovery in this town, during a year, only one was a butcher, and his was a case not of typhus, but of simple fever.

Notwithstanding the favourable circumstances in which butchers are placed, longevity is not greater in them, than in the generality of employments. I suspect it is even shorter than among most other men, who spend as much time in the open air. Butchers in fact live too highly; not too highly for temporary health, but too highly for long life.

The manufacture of glue and size.—This creates ammoniacal exhalations from the decomposition of animal refuse. The stench is disagreeable and prejudicial to the adjoining neighbourhood. Nevertheless, we are informed, that "all the glue and size-boilers we saw, were remarkably fresh-looking and robust."—*(Thackrah).*

The noisome processes in converting the flesh of *dead horses* to different uses, are thus described by Dr. Paris. "The dealers in dead horses, or *knackers*, as they are termed, begin their mercantile anatomy by taking off the shoes and disposing of them to the farrier; the skins are next stripped off, and sold to the tanner; the carcase is then cut into pieces, and boiled in large cauldrons of water, in order to extract the fatty matter, which, being skimmed off from the surface of the liquor, is "*rendered down*" and packed in cases for the soap-boiler, or the manufacturer of cart-grease. Whatever remains after this operation supplies the venders of dogs' and cats' meat with a dainty article of sale; at length, the views of the greedy trader are directed to the bones of this noble animal; a number of persons find employment in chopping them into small fragments, from which the marrow is then extracted by boiling for several hours, and added to the fat already obtained from the carcase; the dry remains are employed in the production of hartshorn by distillation; and after this process is finished, they are removed from the still, and calcined to whiteness, in order to be mixed with clay for the manufacture of porcelain; or they are consumed for the formation of ivory-black."—*(Op. cit.)*

Mr. Thackrah adduces the following evidence against the preceding conclusions :—" It appears by the evidence given before a committee in France, 'That all the men, women, and children, engaged in knackers' operations, knackeries, or carrion-butcheries, had unvarying good health, were remarkably well in appearance, and strong in body. The workmen attained an old age. They handled diseased as well as healthy parts, and frequently cut themselves with impunity. Persons who live close to the places, or go there daily, share these advantages with the workmen.' It is also stated, in confirmation of the above, that above two hundred exhumations are made yearly in Paris, about three or four months after death, and not a single case of injury to the workmen had been known.

M. Labarraque has observed, that the catgut-makers, who live continually in a putrid atmosphere, arising from macerating intestines, enjoy remarkable health. Similar circumstances were remarked at the exhumations of the Cimetiere des Innocens."—*Med. and Physical Journ. new series, vol.* 6.

It is to be regretted that the date of this quotation was not given, as the present opinion as to the danger of exhumation when putrefaction has commenced, is universally admitted; and precautions deemed indispensably necessary on the part of those who perform the process. Ample proof of this fact will be found in the preceding remarks on Exhumation.

In the Annales d'Hygiène Publique et de Medecine Legale, tom. xiv., 1836, the following question is discussed:—*Whether the sale, slaughter, and consumption, of pork fattened with horse-flesh, were likely to be prejudicial to the public health ?*—MM. Adelon, Huzard fils, and Pareut-Duchatelet, have decided in the negative, and their answer is in the paper before us. The circumstances which led to this investigation were briefly these :—Various localities about Paris, where knackeries and carrion-butcheries were established had, for above ten years, constituted a nuisance intolerable, yet irremediable; when, at last, the expedient was adopted, on a great scale, of steaming the flesh of the dead animals. This prevented putrefaction, and rendered the bones perfectly pure, and free from ill odour. Some intelligent speculators then hit on the plan of giving the boiled flesh to pigs, and it proved very successful; so much so, that large herds of swine, from four to five hundred together, are now kept and fattened in the environs of Paris; and it is said, that some of them will presently be increased to the number of ten to twelve hundred. The carrion is steamed on the premises in some of these porkeries; in others, it is given to the pigs raw; but whether cooked or raw, the pigs thrive wonderfully on the diet, so as, in fact, to become from fifteen to eighteen francs a head more valuable, in the course of six weeks or two months.

The public raised the following objections to the preceding. 1. That pigs thus fed must be dangerous—perfect cannibals—eating all the children they could catch hold of. 2. That the flesh of such pigs must give rise to disorders in the human body, particularly to leprosy. And 3. That pork-butchers in certain places, sold sausages made of the produce of carrion, and therefore ought not to be dealt with. The pork-butchers suffered accordingly; but the Council of Salubrity took the matter up, as we have just now mentioned.

In the Veterinary School at Alfort, there are generally kept from one hundred to one hundred and fifty pigs of all sorts and sizes; and for the last seven years they have been fed on nothing but the *débris* of dead horses which have been dissected. This refuse matter is thrown to them in a raw state, and they eat it greedily. Now, there are no better pigs, nor better pork for eating, than are found at Alfort. The pupils eat it without scruple, and it has never had the least bad effect upon them. Nay, MM., the reporters, are highly pleased with the food—they tell us it is excellent. "*Nous avons assisté* (say they), *à un repas de cette école, et avons goûté le petit salé qu'on servait ce jour-là, et nous l'avons trouvé parfait.*" This was putting it to the pudding-test, than which we all know there is none better.

As to the assertion, that this sort of food renders animals ferocious, it is not borne out by the fact. At Alfort, the children of the swineherd are constantly about the pigs, pursue them, and make them readily obey the word of command; yet, though thousands of swine fed entirely on *raw* carrion, have been reared in this establishment, not an accident has ever occurred which could be attributed to ferocity arising from that cause. It is not likely, therefore, that *boiled* flesh should infuriate them.

There is no evidence whatever of any disease (particularly leprosy,) being traceable to the animal nutriment of pigs. The herd at Alfort are always healthy, as are those who feed on them.

The question of possible danger from eating of swine fed on the flesh of animals which had died of *disease*, is also negatived. Dogs and cats have been fed for some time on cancerous flesh, and they have grown fat upon it. Desgenettes and Larrey have seen the dogs and jackals at Jaffa rooting up and devouring the bodies of those dead of the plague,—eating their very buboes, without appearing to suffer the least inconvenience. In the course, also, of the first French revolution, the starving wretches of the faubourg St. Germain, and the vicinity of Alfort, ate perhaps from seven to eight hundred distempered and farcied horses, which were sent to those places by government, for purposes of experiment; yet, so far from doing mischief in any instance, the supply saved the lives of many unfortunate people.

In conclusion, both on the score of administrative economy and that of hygiene, the reporters strongly recommend the encouragement of this new branch of industry. It puts an end utterly to the disgusting business of the former carrion-butchers: the flesh of dead animals is turned to a most useful purpose, and should there be a greater quantity of it than is wanted for immediate consumption, the steam process, by drying it, renders it fit for keeping, and for service in various ways.

Varnish making.—The effluvia which escape in this process from the incineration of animal matter, causes a stench of the most insufferable kind; and is so suffocating, that a few years ago, two workmen, in a manufactory, in Gray's-inn-lane, lost their lives by it. Varnish-makers also inspire a strong vapour of alcohol, turpentine, gum, and tar, which, at first, impairs the appetite, and induces sickliness, "but the men accustomed to the employ, suffer no apparent injury."—*(Thackrah.)*

Tan-yards.—In the process of tanning, the hides are allowed to undergo incipient putrefaction, for the purpose of loosening the epidermis and of rendering the hair or other extraneous matter more readily separated from the skin. There is a very nauseous and disagreeable odour evolved from putrifying skin; but, nevertheless, tanners are remarkably robust and healthful. Disease is almost unknown amongst them, and they are never consumptive.—(Dods, Thackrah, &c.) The latter author is of opinion, that tan-yards, though nuisances in law, ought not to be excluded from towns. Ramazzini informs us, that at Padua, they were only permitted in the suburbs. Curriers and leather-dressers are healthful, and generally live to an old age.—(Thackrah.)

Prussian blue makers.—The first part of the process for making Prussian blue consists in mixing hoofs and tup's horns with Russian or American potass, in large iron stills, to which heat is gradually applied, until the vessel becomes red hot; when the animal matter and alkali are fused into a mass, which is poured into iron pans, where it concretes into solid blocks. The vapours given out in the manufacture of Prussian blue are highly offensive.

Comb and lantern leave makers.—The expansion of cow's horn, by the application of heat, for lantern leaves, is attended with a horrible stench. The less flexible parts are made into combs, and the tips of the horns are sent to Birmingham for the manufacture of buttons. Comb-makers are healthy and long lived.—(Thackrah.)

Soap-boiling.—The stench, which is caused by soap-boiling, has repeatedly formed the ground for action or indictment. Thackrah informs us that soap-boilers are healthy, and even ruddy. It is recorded that they were exempt, during the plague of London. They generally live to an old age.

Tallow-chandling.—The men who work in this manufacture are subject to a most offensive animal odour; but they enjoy good health, and attain a considerable age.

Buckram manufacturers are exposed to the odour of glue, which is so great as to offend the neighbourhood. The men make no complaint, and reach a considerable age.

Breweries, distilleries, glass-houses, gas-works, and all trades and manufactories, which require the consumption of a considerable quantity of coal, and emit large volumes of smoke, which overwhelm the neighbourhood, are injurious to public health, and are nuisances in law. It has, however, been determined, by experiment, that the quantity of smoke which ascends into the atmosphere, from fires of equal size and consumption of coals, is in the inverse ratio of the height of the chimneys. When these are erected to the height of 150 or 200 feet, a large portion of the carbonaceous and other matters, which would otherwise escape into the atmosphere, are condensed in them, and as any that escapes is dissipated by the air, no inconvenience is felt in the neighbourhood, except by what is popularly termed "the fall of the blacks," soot, or carbonaceous matter. High pressure steam is now substituted for fire in Whitbread's brewery, and in other manufactories, and the evolution of smoke is most perceptibly diminished.

Smelting.—The process of smelting ores, as copper, lead, &c., is the most injurious of all the operations of art, though less offensive to the senses. The following remarks of Dr. Paris attest the truth of this statement:—

"The author of the present note has had ample opportunities of investigating the effects of arsenical fumes, which arise from the burning-houses in Cornwall, and from the great copper-works carried on at Hyde in that county, and they appear to be especially pernicious to gramnivorous quadrupeds; horses and cows loose their hoofs; and the latter animals are not unfrequently seen, in the vicinity of the works, crawling about on their knees; they are also subject to a cancerous affection in their tails; and milch cows lose their milk. The herbage also suffers materially from the poisonous smoke, especially in wet seasons; corn is blighted in the ear, and never perfects its seed, unless care be taken to select at that period such ore as will yield but little sublimate. Cabbages do not appear to suffer in the least; nor are potatoes materially injured; and it is not the least curious circumstance in the history of these works, that the apple trees in their vicinity grow and bear fruit without sustaining any of those ill effects which we should have anticipated; but, on the contrary, the arsenical fumes appear to destroy all the insects which usually infest such trees, and their trunks exhibit a cleanness which would delight the horticulturist. The men employed in these works are occasionally affected with a cancerous disease in the scrotum, similar to that which infests chimney-sweepers; it is however probable that this arises from the immediate application of the excoriating material made by the hand in the act of rubbing the part. A similar objection was a short time since observed in a manufactory, in which the workmen were engaged in making an arsenical preparation for a green dye, used in calico printing."

Brass-founders, copper-smiths, and manufacturers of white lead are generally unhealthy.

Gas-works.—Gases are much more dangerous to public health, and, therefore, worse nuisances than manufactories, which are objectionable, on account of the quantity of smoke they send into the atmosphere. The manufactories of sulphuric and nitric acids, and of chlorine, are of this description.

In the manufacture of *sulphuric acid* in this country, a vast deal of the materials escapes into the air, on account of the carelessness of the workmen, in the form of sulphurous acid and nitrous gas, which are injurious to animal and vegetable life. Much inconvenience and injury to health arise from breathing these gases. But MM. Guyton, Morveau, and Chaptal, reported to the French government, in 1806, that the distillation of acids commonly proves dangerous, from want of due precaution.

In the manufacture of *aqua fortis*, nitrous gas is evolved, and becomes so highly diluted by the atmosphere, as not to be insalubrious. This observation also applies to the manufacture of bleaching fluid, in which much chlorine is extricated. Though the dilution of these gases in manufactories render them respirable by the workmen, who are accustomed to them, they may prove fatal to strangers. The inhalation of diluted chlorine is found beneficial in consumption and pulmonic diseases. Dr. A. T. Thomson was informed by Mr. Tennant, of Glasgow, the greatest manufacturer of bleaching materials in this country, that some of his men, affected with pulmonary diseases, are often relieved, if gradually taken into the chlorine house, and that consumptive persons frequently take lodgings near his works, for the express purpose of inhaling the highly diluted gas. (*Lectures on Medical Jurisprudence, in Dr. Ryan's London Medical and Surgical Journal*, 1835, vol. vii.) Sir James Murray had received similar information from a manufacturer at Belfast. (*On the Influence of Heat and Humidity, with Practical Observations on the Inhalation of Iodine and other Vapours, in Consumption, &c. London*, 1829.) Dr. Sanders, of Edinburgh, had previously advised the fumes of muriatic acid and of æther "in pulmonary ulcerations of depraved condition," (*op. cit.*) The following year, the treatise of M. Gannal, on the successful inhalation of diluted chlorine in the early stages of Pulmonary Consumption, as a Remedy, capable of prolonging Life, &c., was translated by Mr. Potter, London, 1830; and this was succeeded by Sir Charles Scudamore's treatise on the same subject, 1834. I have repeatedly tried the inhalation of chlorine and iodine in vapour in tuberculous consumption, but in a very few cases only with temporary benefit.

The fumes of the mineral acids, when largely evolved, excite cough and a sense of tightness of the chest. Hence asthmatics cannot bear this employment. The enamel of the teeth is also injured by the acid fumes. Some men become accustomed to these gases, their general health is not impaired, and arrive at an advanced age.

Coal gas works.—Some of the deleterious gases escape in these works, which are breathed, more or less diluted, by the workmen, though supposed to be deleterious to others. Gasmen, who are exposed to the abominable evolutions of sulphuretted hydrogen in the manufacture of gas for lights, are not aware of any injury resulting from the process, and say they are well and hearty. The manufacture, however, being of comparatively recent origin, does not afford us the opportunity of seeing its full and ultimate effects.—(*Thackrah.*)

Brick and Lime-kilns evolve carburetted hydrogen and carbonic acid gas; and may prove fatal to those who sleep near them. They are seldom regarded as nuisances; but they are generally erected on the suburbs of towns and cities.

Foul drains, sewers, privies, cess-pools.—These give rise to exhalations which infect the atmosphere with the miasms of disease; and these are ammonia, sulphuretted hydrogen gas, and carburetted hydrogen gas. When a drain is obstructed by an accumulation of filth, it becomes a source of miasms which are more destructive than those arising from stagnant pools, in consequence of the greater quantity of animal matter contained in the mud. The contents of drains may pass into wholesome rivers or streams, and render water unwholesome, unless filtered. The gases evolved, unless largely diluted with atmosphere, may suddenly extinguish life, or cause the worst forms of typhus. A few years ago, a malignant fever prevailed about Manchester Square, which was attributed to the opening of a common sewer, which had not been examined for a century. In 1828, twenty-one boys, at a boarding-school a Clapham, were suddenly seized with violent cholera, in consequence of approaching an open drain, which exhaled sulphuretted hydrogen.

Many fatal cases are recorded by M. Halle *(Recherch. sur la Nature du Mephitisme des fosses d'aisance,*1785), and also in the numerous works on Medical Jurisprudence. Baron Dupuytren ascertained, by experiments, that air, containing 1-1300th of this gas, destroyed a bird in a short time; that which contains 1-800th killed a middle-sized dog; and that a horse died in an atmosphere impregnated with 1-250th of it.

It is important to *sewer-men,* or persons employed in cleaning drains, to ascertain the presence of sulphuretted hydrogen gas before they venture to descend into such places; and this may be accomplished by letting down into the suspected drain, a piece of paper, moistened with a solution of subacetate of lead, or merely rubbed over with the dry carbonate. If the gas is present, the paper will be stained of a deep brown colour. Laennec found the lungs of persons destroyed by this gas crepitous, the air cells greatly distended and incontractible.

The *night-men* of London, whose disgusting work is to empty privies, "are generally healthful, and declare that the effluvium increases the appetite. The observations under this head also apply to slaughtermen and butchers. The innoxious and even beneficial character of animal exhalations is strongly exhibited in that employ."—(*Thackrah.*) These observations are obviously incorrect, according to the preceding facts, which cannot be questioned.—(See PUTREFACTION.)

The abatement of all nuisances which deteriorate or inquinate the atmosphere, is of the highest importance to the conservation of public health and the extinction of endemic, epidemic, and contagious diseases. It was enacted by an old statute, 12 R. ii., "that none shall cast any garbage, dung, or filth, into ditches or waters within or near any city or town." This is indictable.—(2 Strange, 686.) Hence our laws for sweeping, cleansing, paving, and lighting towns and cities; but it is to be regretted, that these are seldom enforced in the localities in which the poor reside, which need them most. Infectious diseases are invariably more prevalent in crowded lanes and alleys, where the narrowness of the streets, and the alleged operation of the window-tax, have excluded the possibility of proper ventilation.—*(Paris and Fonblanque.)*

The purity of water has been always deemed essential to the health of man. Accordingly we find that it is an indictable offence "to steep stinking sheep skins, or other noxious, noisome, or poisonous thing, in running streams or other waters, (2 Strange, 686,) or to erect a lime-kiln so near a fish pond that it infects the water, and the fish die, or to make a drain which brings in unwholesome food to them, (16 Vin. Abr. 33), or when the refuse of gas works is discharged into a river, and is said to have destroyed the fish.—*(Paris and Fonblanque.)*

If fish die in water, the fluid is unfit for the use of man, even when filtered; but there are exceptions to this proposition. Thus, it has been proved, that smelts and flounders have been destroyed in the immediate vicinity of London, though the Thames water, when filtered, is as wholesome as any obtained from the purest springs.—(*Bostock*, *Thomson*, *&c.*) It is to be recollected, that all the drains in this vast metropolis, open into that river, and it contains "unutterable things." The wholesomeness of the Thames water is thus accounted for by Dr. A. T. Thomson: "this depends on the vast body of water, and the constant change which it is undergoing, so that the poisonous contents of the drains are rendered inert by dilution, in the same manner as the poisonous exhalations emanating from some manufactories are dissipated in the atmosphere by means of high chimneys. But the same reasoning does not hold good with regard to tanks and stagnant waters, or wells into which imperfect drains may pour their contents by filtration, and render the water not merely insalubrious but poisonous." Lakes and other collections of stagnant waters, and fish ponds, may be poisoned, and the latter have been so contaminated in this country, that the 7 & 8 Geo. IV. declares it a transportable offence. It is a common crime in oriental nations, where tanks are often poisoned. It is stated by Dr. Wallich, that during the Burmese war, the natives poisoned a tank which was to supply a large detachment of the British army, by throwing bruised aconitum ferox into the water. This was fortunately discovered by the narrator.

A vast deal of prejudice has been shown on the subject of the supply of water to this metropolis, which was fomented by the different water companies, but most wisely annihilated by the commissioners appointed by parliament a few years since. Too many of the medical profession joined in the public clamour; but as they were not guided by science, their opinions failed to produce any effect. The public too, were in favour of the water companies, but it was finally discovered in 1835, that these were no better than they ought to be, and accordingly a new one is now being established to surpass all the rest.

There is one thing certain, that every river water intended for domestic purposes, should be filtered by a proper machine, such as those now in use, before it is employed in culinary processes.

It is now admitted by the ablest medical jurists, that the Thames, or any other river water used in London, is, when filtered, as wholesome as any other.

THE END.

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